



FRIDAY, AUGUST 18, 1899.

CONTENTS.

ILLUSTRATIONS:	PAGE	GENERAL NEWS:	PAGE
A Ten-Wheel Express Locomotive in England ..	578	Car Building	586
The Richmond Double Port- ed Valve	580	Bridge Building	586
A New Portable Tie Treat- ing Plant	581	Meetings and Announce- ments	588
Vauclain Compound Com- pressed Air Locomotive ..	585	Personal	588
		Elections and Appoint- ments	588
		Railroad Construction ..	588
		General Railroad News ..	589
		Traffic	590
CONTRIBUTIONS:			
The American Switch Co. ..	577		
War and Engineering Works in South Africa ..	577	MISCELLANEOUS:	
Partially Used Mileage Tickets	577	Technical	585
		The Scrap Heap	585
		The Work of the Interna- tional Association for Testing Materials	577
EDITORIALS:		Fast Regular Trains in England and France ..	578
The Public, the Railroads and Rate Cutting	582	Pennsylvania Railroad Pension Fund	579
Annual Reports	582	Northwestern Track Ele- vation in Chicago	579
EDITORIAL NOTES	582, 583	State Railroad (Commis- sioners' Convention) ..	583
New Publications	583	Chairman Knapp on Gov- ernment Regulation of Railroads	584
Trade Catalogues	583	Richmond Locomotives for Sweden	584
GENERAL NEWS:			
Locomotive Building ..	586		

Contributions.

The American Switch Co.

Ajax Forge Company,
Chicago, Aug. 12, 1899.

To the Editor of The Railroad Gazette:

In your issue of August 4, under the item headed "The American Switch Company," this company is included as one of the companies forming said organization.

This is an erroneous report. Kindly make proper correction in your next issue.

AJAX FORGE COMPANY.

War and Engineering Works in South Africa.

Johannesburg, S. A. R., July 1, 1899.

To the Editor of The Railroad Gazette:

I have made inquiries as to how a war between the South African Republic and England would affect the building and contracts of the Rustenburg & Leidenburg RR., and was informed that the contracts, etc., would stand under all circumstances. I hope there will be no war. As far as possible the people go on with their work, as well as the corporations and the Government, the same as ever.

G. W. W.

[But the British will hold all the lines of rail communication. They will hardly allow material to go in to complete the railroads within the borders of a hostile country.—Editor.]

Partially Used Mileage Tickets.

Cincinnati, O., Aug. 12, 1899.

To the Editor of The Railroad Gazette:

We notice with interest in your issue of August 4, an item on page 562, under head of Chicago Traffic Matters, to the effect that there is talk about a change in the style of the Interchangeable Mileage ticket now in use on roads west of Chicago. The tone of your item would indicate that there is nothing in the claims of the people who are asking for these changes. We think perhaps you are laboring under some misapprehension.

The present form of the Western Mileage Credential does not allow the redemption of an unused portion of a credential. For instance, Mr. Smith is traveling for our company in the state of Iowa. He has credentials showing that he has traveled 1,000 miles. His services are unsatisfactory and we are obliged to discharge him and put another man in his place. We have been paying all his traveling expenses. Now, under the present rule we cannot get any refund on these 1,000 miles, although we may put another man in Mr. Smith's place who will not only travel the thousand miles remaining on this credential but a great many other thousand miles. This we claim is an injustice to large corporations like ours, and we are making the best fight we know how to have this rule changed. The same would be true in the case of a salesman dying or anything happening to him which would make his further traveling impossible.

Both the Central Passenger Association mileage and the Northern Michigan mileage rules in such cases are that if a receipt is presented showing that a man's successor has bought a new book and this is submitted to the bureau with the unused portion of the old book, a refund will be granted.

THE PROCTOR & GAMBLE CO.,
By J. M. Macdonald.

The Work of the International Association for Testing Materials.*

Prior to the year 1800 little was known of the properties of the materials of construction. Galileo had shown in 1638 that the strength of a rectangular beam varied with the square of its depth, Hooke in 1678 had announced the law that the stretch of a spring was proportional to the stress upon it, various authors had discussed the forms of beams of uniform strength, and Euler in 1744 had enunciated his formula for the resistance of columns under compression. Theory was far in advance of practice, for experiments had been so few and so imperfect that the elastic limit was scarcely recognized.

During the years from 1800 to 1850 great progress was made in the theory of elasticity, and a slow growth took place in knowledge of the properties of materials under stress. The introduction of railroads and the consequent necessity of providing a firm roadbed and safe bridge structures gave a powerful stimulus to the investigation of metals in order that ample security might be afforded with the greatest degree of economy. The methods of testing were, however, so imperfect that progress was slow, and, with the exception of the classic researches of Hodgekinson, the work of this period was mostly of value as a preparation for that of the future.

After 1850 large testing machines for special purposes began to be built, elongation and ductility began to be carefully studied, and soon after 1870 it was recognized by many manufacturers that physical tests of metals were imperatively necessary in order to secure uniformity of product. As these tests were multiplied and the records subjected to investigation, the knowledge was gained that the strength of a specimen depended upon its size and proportions and also upon the manner in which the load was applied. The term elastic limit assumed a new significance when it became recognized that it could be defined and measured in different ways. In short, it was found that tests of materials must be made in a similar manner in order to render the results comparable. This idea, although long recognized, has proved a difficult one to realize. It has been discussed by many engineering societies, some of which have attempted to formulate standard methods. Finally the International Association for Testing Materials was formed in order to study the whole subject and endeavor to arrive at conclusions that should be authoritative.

In 1882, through the influence of John Bauschinger, a number of German experimenters met at Munich and discussed the question as to how uniformity in the methods of testing materials could be promoted. As a result of this meeting formal conferences were held at Dresden in 1884, at Berlin in 1886, at Munich in 1888 and at Vienna in 1893, delegates from other European countries being often present. The reports of the proceedings of these conferences, published in Bauschinger's "Mittheilungen," attracted wide attention, and the great value and importance of the discussions became universally recognized in engineering circles. In short, the movement assumed an international character.

In 1890, as a result of the international congresses of engineering held at Paris in the preceding year, the French government appointed a commission to formulate standard methods for testing the materials of construction. Its report, published in 1894, in four large volumes, is one of the most valuable contributions to the subject, but from the first it was recognized that ultimate conclusions could not be determined by a commission of one nationality, and accordingly, since 1895, the French government has given hearty support to the work of the International Association.

In 1895, as a result of the four preceding conferences, the fifth conference met at Zurich, all European countries, except Turkey, being represented. The United States government was represented by an army officer and the American Society of Mechanical Engineers by a delegate. At this congress the International Association for Testing Materials was formally organized, its object being, as stated in its statutes, "the development and unification of standard methods of testing for the determination of the properties of the materials of construction and of other materials, and also the perfection of apparatus for that purpose." This meeting at Zurich hence assumed an importance far greater than any preceding conference, and it may be called the first congress of the International Association.

At the Vienna convention of 1893 there had been appointed 20 committees on technical subjects, and reports from many of these were presented at the Zurich congress of 1895. These reports were published in the French and German languages in the official organ of the Association called "Baumaterialienkunde," the first number of which appeared in July, 1896. The work of some of these committees was continued, other subjects were proposed for future consideration, and a council was organized to transact the business of the International Association in the intervals between the congresses.

In 1897 the second congress of the International Association was held at Stockholm, there being present 361 members representing 18 countries. The United States government was represented by an army officer and a navy officer, and the American Society of Mechanical Engineers by a delegate. The congress continued in session for three days, reports of committees were presented, papers read and discussed, and plans outlined for the future work. It was resolved that the next congress should be held in Paris in the summer of 1900, and the Council was

* An address by Prof. Mansfield Merriman of Lehigh University, Chairman of the American Section of the Association, at the second annual meeting, held in Pittsburg, Pa., August 15-16, 1899.

authorized to appoint technical committees to make reports at that time on special problems relating to the objects of the Association.

At a meeting of the International Council held early in 1898 appointments were made of chairmen of 21 committees on technical problems, and the number of members on each committee from each country was assigned. It was also recommended, in order to expedite the appointment and work of these committees, that the members in each country should meet and form a national section of the International Association. In compliance with this recommendation a number of the American members met on June 15, 1898, and organized an American Section, whose first annual meeting was held at Philadelphia on Aug. 27, 1898, and whose second annual meeting I now have the honor to address.

The membership of the International Association numbered 493 in 1895, 953 in 1896, 1,169 in 1897, 1,488 in 1898, and is now probably about 2,000. Germany takes the lead in regard to numbers of members, it having 387 in 1898, while Russia had 315, Austria 158, England 83, Switzerland 83, United States 68, Sweden 68, France 66, Holland 48, Norway 42, Denmark 39, Spain 36, Italy 35 and 60 from nine other countries. With regard to the American membership, it may be noted that it numbered 6 in 1895, 25 in 1896, 60 in 1897, 68 in 1898 prior to the organization of the American Section, 106 in February, 1899, and that it is now nearly or quite 125.

There are two peculiarities regarding membership in this Association that deserve notice. First, there is no nomination or election of members, but any person desiring to be a member may do so on signing a statement that he assumes membership and will be governed by the laws of the Association; in so doing he further assumes the obligation, stated in Art. 5 of the statutes, that he will advance its interests to the best of his ability. Membership is hence a voluntary act assumed by an individual in order to promote the knowledge of the properties of materials and to endeavor to secure uniformity in methods of testing them. Withdrawal from membership may be made at any time by mere announcement to the proper officer of the Association.

The second noteworthy feature regarding membership is that it may be assumed by a corporation or society as well as by a person. For example, in the list of members of the American Section, published in February last, will be found the Franklin Institute, the American Society of Mechanical Engineers, the American Foundrymen's Association, and five local engineering clubs, as also several steel companies, engineering journals, and firms engaged in inspecting and testing. In Europe this feature is carried much further, the membership of the German section including the bureau of public works of several cities, provinces and states, the police bureau of Berlin, the Prussian war department and the boards of direction of numerous railways, as also a large number of manufacturing corporations and engineering societies. Under this arrangement it is possible for a corporation to exert a greater influence than through the indirect individual membership of its President or Superintendent, both manufacturers and consumers can make their wishes more directly known, and thus differences in regard to methods of inspection and testing can be more quickly harmonized than under the usual plan of strict individual membership. However, fully three-fourths of the total members are individuals, and these include engineers in all branches, architects, chemists, professors of mechanics and engineering, and Superintendents and foremen of works.

The dues of \$1.50 per year per member transmitted to the International Council are used by it in issuing its publications and in assisting its committees in defraying a part of the expenses of their special investigations. In addition to this income a number of societies and bureaus have agreed to make extra annual contributions, the Prussian war department heading the list with \$125, and 21 others giving smaller sums, so that for the year 1898 the amount derived from these sources was about \$400. Although official information is not at hand, it is safe to say that the total income of the International Association for the year 1898 did not exceed \$2,000, which is certainly a small sum with which to issue its publication and carry on the work of 21 committees.

The International Association has issued yearly since 1895 a list of members, and also abstracts of the proceedings of the congresses of 1895 and 1897. These, together with a few circulars of information, constitute all the publications that it has been able to furnish free to its members. The detailed proceedings of the congresses have been printed in the journal "Baumaterialienkunde," published in the French and German languages, at Stuttgart, which has been furnished to members at \$2.50 per year, the regular subscription price being \$3.50. It will be seen, therefore, that an American member who desires to be fully informed regarding the work of the Association must necessarily subscribe to this journal, and by so doing his dues become really \$5 per year. It should further be stated that arrangements will probably be made so that the official announcements of the International Council and the proceedings of future congresses will be printed in this journal in the English language, as well as in German and French.

The technical questions proposed for discussion at the Paris congress of 1900 are 19 in number. The organization of the international committees which are to consider these topics is now complete, and preliminary reports from the American members of several of them are to be presented and discussed at this meeting. Probably the most important of these subjects is that of standard international specifications for testing and inspecting iron and steel; this committee originally consisted of about 40 members, of which five were assigned to this country, but under authority to increase its numbers the Ameri-

can sub-committee has been increased to 21, has held several meetings, collected specifications, and will present a preliminary report of much interest. It is also expected that the American members of five other international committees on iron and steel will report progress in their organization and work. As the national sub-committees are now in full correspondence with the international chairmen, it is expected that the final reports which are to be presented for discussion at the Paris congress will prove of great interest and value.

Of the 19 problems to be considered by the 19 international committees six are on iron and steel, one on stone and slate, eight on cements and mortars, one on tile pipe, one on paints, one on lubricants, and one on the dry rot of wood. The fact that there are eight committees on cements and mortars and only six on iron and steel may seem abnormal, but it should be remembered that in the testing of hydraulic cement the personal equation of the observer enters to a far greater degree than in the case of metals, and that its rapidly increasing use demands the immediate perfection of methods which will render comparable the work of different laboratories. At the session to-morrow morning preliminary reports from some of our sub-committees on these questions will be presented.

While the main object of the Association is to establish standard rules for testing, it is recognized that this cannot be done until a thorough knowledge is obtained of the properties of materials under varying conditions. Accordingly the work of some of the committees is to collect and digest the information now on record, or to make scientific investigations that will render present knowledge more complete and definite. Thus, there is a committee on the properties of steel at abnormally low temperatures, one on the relation of the chemical composition of stone to its weathering qualities, one to digest the work of previous conferences and conventions on the adhesion of hydraulic cement, one on the causes of the abnormal behavior of cements as to time of setting, and one on the protection of wood against the action of dry rot. Some of these subjects have already been discussed at the congresses of Zurich and Stockholm, and accordingly the reports to be presented to the Paris congress should contain positive additions to present knowledge.

At the annual meeting of this section, held last year, the desire was expressed to discuss the subject of impact tests, and a special committee was appointed whose report will be presented at this meeting. Later, other members requested that other problems should be taken up by the section, and accordingly three other American committees have been organized on special problems connected with the manufacture of iron and steel. While these committees have no connection with the international ones, it is believed that their work will add to the interest of our annual meetings, and further the general objects of the Association.

There are advantages and disadvantages in doing technical work by committees. One advantage accrues through the harmonization of the different views held by individuals, whereby non-essentials are rejected and only fundamental methods retained. One of the disadvantages is that this process of harmonizing views takes time, causing reports to be long delayed, particularly with international committees. Some technical societies appoint committees with great reluctance, fearing that their reports may be regarded as official action. In the case of our international organization, no such fear is felt, and the report of a committee is to be considered from the same point of view as the paper of an individual member. Through the formation of the national sections, the work of the international committees can certainly be made more valuable and effective than ever before, for each national sub-committee, after having eliminated disagreements of its individual members, can work as a body to impress its views upon the other national sub-committees. In many cases an international agreement may be found difficult to make, but if made after such full discussion it will be sure to be authoritative and valuable.

The subject of the chemical analysis of iron and steel has been discussed in previous conferences and congresses, and at the Stockholm meeting of 1897 it was formally resolved to establish an international sidero-chemical laboratory at Zurich. It was stated that fifteen smelting companies and iron manufacturers had pledged themselves to contribute \$3,500 per year for this purpose, and that the Polytechnicum at Zurich had offered the use of four well-equipped rooms. It was, accordingly, determined to open the laboratory in 1898, and an international commission was appointed to take charge of it and raise further funds for its maintenance. I am unable to state how fully this has been carried out, as no published accounts of its work have appeared. It is, however, to be doubted whether the establishment of chemical and physical laboratories falls properly within the scope of the objects of the association. If sufficient funds could be raised so that men of different nationalities might meet at such a laboratory to actually make analyses and tests, each criticizing the others, while at the same time learning from them, then undoubtedly effective work would

be done in harmonizing differences and perfecting standard methods. It is to be hoped, if the establishment of the sidero-chemical laboratory at Zurich proves to be successful, that it may tend to further this method of research. It is, however, the opinion of many members that results as good, if not better, would be secured by arranging systematic schemes of investigation and distributing the actual work of analysis or testing among the laboratories of different countries.

A brief history of the organization and work of the International Association for Testing Materials, and of that of its American Section, has now been given. The great interest taken in the movement in so many countries is an index of the necessity felt in all branches of the engineering profession for the introduction of uniform methods of testing and inspecting the materials of construction. This work is one that must occupy many years, and which in a certain sense can never be finished, for constant progress will be made in our knowledge of the properties of materials. In order to carry it on with success it is apparent that more money will be needed than the small amount now raised from the annual dues of members. In Europe the importance of the work of the Association is forcibly attested by the fact that engineering societies, bureaus of public works, iron and cement manufacturers, and railroads assist it by extra annual contributions, and it is to be hoped that the influence of this section may be sufficient to cause similar substantial gifts to flow into its treasury from American corporations.

Since the above was written a circular of the International Council has been received, containing the information that probably arrangements cannot be made for holding the congress of the Association at Paris in 1900. It appears that the authorities of the Paris Exposition have the right to control the organization of all congresses held in that city in that year, and that they have announced one to be held on the subject of materials, and appointed officers to conduct the same. The subject will be discussed at this annual meeting, and expressions of opinion are desired as to whether it is best to abandon our congress of 1900, in order to co-operate with the one announced by the authorities of the Paris Exposition, or to hold it at London during the week preceding.

In conclusion, it is with pleasure that I congratulate the American Section upon its activity and the Association itself upon the bright prospects before it. The undertaking inaugurated by Bauschinger and his associates bore good fruit at the conventions of 1884, 1886, 1888 and 1893, and prepared the way for the Zurich meeting of 1895, which was at the same time the fifth convention and the first congress. At the Stockholm congress in 1897 the true international work was begun, and the problems there proposed are now the subject of careful study in all parts of the earth. Let us hope that the reports to be presented at the future congresses will be such as to add to the present stock of knowledge, prove advantageous to both producers and consumers, and assist all engineers in economically using the materials and forces of nature for the benefit of man.

Fast Regular Trains in England and France.

In the issue of the Engineer (London) of July 28 we find an article by Mr. Charles Rous-Marten on the summer train services in Great Britain and France. The substance of the article is presented in the four tables below. In addition, we note that the Great Western now runs three trains which make 194 miles each without a stop. This is from Paddington Station, London, to Exeter and back. The fastest of these is timed at 56 miles an hour, surely a fine performance. The same road runs two expresses from London to Birmingham, 129½ miles, without a stop. One of these makes the journey at an average of 53.5 miles an hour. The Great Western also runs an express to South Wales which makes the run from Paddington to Bath, 106 miles and 70 chains, at 54.3 miles an hour, without a stop.

The London & South Western has a train which is scheduled to run a certain distance of 15 miles and two chains, in 15 minutes, or 60.1 miles an hour, which Mr. Rous-Marten says is "the fastest timing in Great Britain."

The London & North Western runs a train from London to Crewe, 158 miles, without a stop, at 52.6 miles an hour.

There are certain long distance runs in France which do not appear in the tables; one of these is the special express of the Paris-Orleans line from Paris to Bordeaux, which runs 363 miles at exactly 54 miles an hour, including stops. This is comparable with the New York Central's Empire State Express, which runs from New York to Buffalo, 440 miles at 53.4 miles an hour. The best runs of such distance to be found in Great Britain are from Kings Cross to Edinburgh by the Great Northern, etc., 393 miles at 50.7 miles an hour; and from Euston to Glasgow, by the North Western, etc., 401.5 miles, at 50.2 miles an hour.

In the article now before us Mr. Rous-Marten does not give the weights of trains, which important element must be known to make the comparison en-

tirely satisfactory. Nevertheless the French schedules of to-day are an astonishing improvement over those of 10 years ago, when Messrs. Foxwell & Farrar wrote their book on "Express Trains." The reader will remember that at that time they found but few trains in France making any considerable run at over 40 miles an hour, including stops. What follows is taken verbatim from Mr. Rous-Marten.

I append a list of what appear to be the best runs on the various main lines of Great Britain. Nothing timed at a lower speed than 50 miles an hour is given, or, indeed, is worth giving in these days, when booked speeds exceeding 50 miles an hour are so common. In addition to the fastest booked runs, I have given also those times at 54 miles an hour or more, so far as I have been able to discover them.

	Miles and Chains.	Hrs. and Mins.	Miles per Hr.
L. & S. W. Dorchester-Wareham (twice)	15 2	0.15	60.1
Cal. Forfar-Perth	32½	0.33	59.1
Cal. Stirling-Perth	33	0.35	56.5
Cal. Perth-Aberdeen	89¾	1.37	55.6
G. N. Peterborough-Finsbury Park	73¾	1.20	55.3
G. N. Hitchin-Huntingdon	26¾	0.28	55.3
N. E. York-Darlington	44¾	0.48	55.3
N. E. Wick-Edinburgh	57½	1.3	54.8
L. & S. W. Okeham-Yeoford	14½	0.16	54.4
G. W. Paddington-Leamington	106	1.57	54.3
G. W. Paddington-Bath	106 70	1.58	54.3
G. E. Trowse-Ipswich	45¾	0.50	54.3
G. N. Grantham-Doncaster	50¾	0.56	54.1
N. E. Darlington-York	44¾	0.49	54.1
Mid. Kettering-Kentish Town	70¾	1.19	53.5
L. & N. W. Rugby-Crewe	75¾	1.25	53.3
G. C. Manchester-Birkdale	48¾	0.53	52.9
G. C. Marylebone-Leicester	108	2.0	51.5
L. Y. Southport-Salford	33¾	0.39	51.5
G. & S. W. Carlisle-Dumfries	33	0.39	50.7

Crossing the English Channel into France, we are at once met by such a galaxy of splendid timings as must unhappily make the majority, at any rate, of our British runs "pale their ineffectual fires."

I append a list of the best new timings on the various main lines of France, ignoring those that do not average 50 miles per hour, and giving as many as I can discover of those which equal or exceed 54 miles per hour:

Nord:		Miles.	Hrs and Mins.	Miles per Hr.
Railway. Between.				
Paris-Amiens	8	1.21	60.4	
Paris-St. Quentin	95	1.40	57.4	
Amiens-Calais Pier.	104	1.49	57.2	
Longueau-Paris	79	1.24	56.4	
Paris-Longueau	79	1.25	55.8	
Amiens-Boulogne Ville	76¾	1.24	54.8	
Amiens-Paris	81¾	1.30	54.5	
Paris-Amiens	81¾	1.30	54.5	
Arras-Longueau	40	0.44	54.5	
Paris-Arras	119¾	2.12	54.2	
Longueau-Paris	79	1.28	53.8	
Calais Pier-Amiens	104	1.57	53.3	
Longueau-Creil	47½	0.54	52.8	
Paris-Longueau	79	1.30	52.6	
St. Quentin-Paris	95¾	1.50	52.2	
Paris-Feignies	143¾	2.46	51.3	
Orleans:				
Orleans-Tours	69¾	1.12	57.9	
Angouleme-Bordeaux	87¾	1.31	57.6	
Bordeaux-Angouleme	87¾	1.31	57.6	
Poitiers-Angouleme	70¾	1.14	57.2	
Angouleme-Poitiers	70¾	1.14	57.2	
Angouleme-Poitiers	70¾	1.15	56.4	
Poitiers-Tours	62¾	1.7	56.0	
Paris-Orleans	74	1.20	55.5	
Tours-Poitiers	62¾	1.8	55.1	
Orleans-Tours	69¾	1.16	54.8	
Angouleme-Bordeaux	87¾	1.36	54.7	
Poitiers-Angouleme	70¾	1.18	54.2	
Tours-Orleans (twice)	69¾	1.17	54.1	
Orleans-Paris (twice)	74	1.22	54.1	
Bordeaux (Bastide)-Angouleme	82¾	1.32	53.7	
Angouleme-Poitiers	70¾	1.19	53.5	
Poitiers-Tours	52¾	1.11	52.8	
Paris-Orleans	74	1.25	52.2	
Tours-Poitiers	62¾	1.12	52.1	
Tours-Orleans	69¾	1.20	52.1	
Orleans-Paris	74	1.26	51.6	
Bordeaux-Angouleme	87½	1.43	50.0	
Midl:				
Dax-Bayonne	31	0.31	56.3	
Morcenx-Bordeaux	67½	1.12	56.2	
Bayonne-Dax	31	0.34	54.7	
Bordeaux-Dax	32	1.45	52.5	
Quest:				
Paris-Rouen	86¾	1.42	51.0	
Est:				
Paris-Troyes	103¾	2.4	50.2	
Paris-Rheims	96¾	1.56	50.0	

It may be interesting to supplement this table by appending a list of the fastest of these runs in their order. I give only those timed at 55 miles per hour and upward:

	Miles.	Hrs. and Mins.	Miles per Hr.
Nord-Paris-Amiens	81¾	1.21	60.5
Orleans-Orleans-Tours	69¾	1.12	57.9
Orleans-Angouleme-Bordeaux	87¾	1.31	57.6
Orleans-Bordeaux-Angouleme	87¾	1.31	57.6
Nord-Paris-St. Quentin	95¾	1.40	57.4
Orleans-Poitiers-Angouleme	70¾	1.14	57.2
Orleans-Angouleme-Poitiers	70¾	1.14	57.2
Nord-Amiens-Calais Pier	104	1.49	57.2
Orleans-Angouleme-Poitiers	70¾	1.15	56.4
Nord-Longueau-Paris	79	1.24	56.4
Midl-Dax-Bayonne	31	0.31	56.3
Midl-Morcenx-Bordeaux	67¾	1.12	56.2
Orleans-Poitiers-Tours	62¾	1.7	56.0
Nord-Paris-Longueau	79	1.25	55.8
Orleans-Paris-Orleans	74	1.20	55.5
Orleans-Tours-Poitiers	62¾	1.8	55.1

I may remark that all these railways use the four-cylinder compound engines designed by M. de Glehn, of the Societe Alaisienne, Belfort.

A Ten-Wheel Express Locomotive in England.

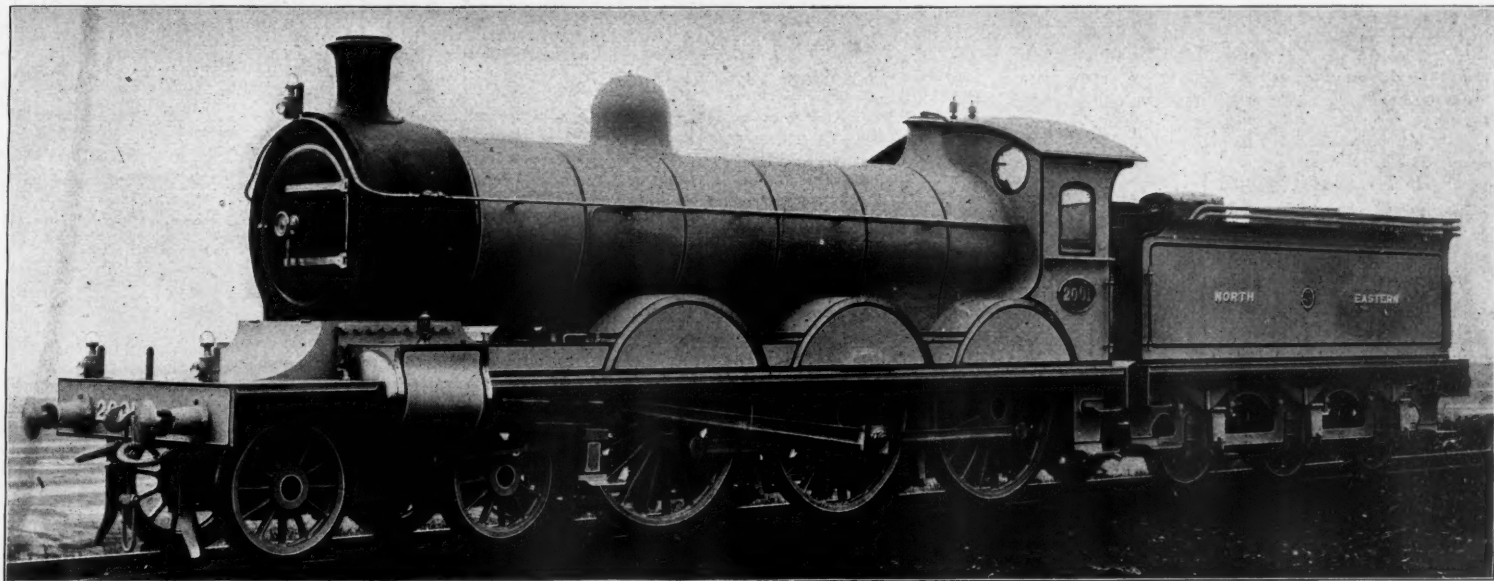
By J. P. P.

The tendency to build locomotives of greater size and weight, previously commented on in recent issues of the Railroad Gazette dealing with huge locomotives built for use on the Great Northern and the Lancashire & Yorkshire railways of England, has been carried a step further by the Locomotive Engineer of the North Eastern Railway, who has just turned out a machine from the Gateshead shops

which, being of the six-coupled express type, should possess a special interest for Americans. As shown in a paper on the Lancashire & Yorkshire Railway some weeks back, Mr. Aspinall has sought, while retaining four-coupled driving wheels of large diameter, to supply a great reserve of power by giving the engine the abnormal (for England) heating surface of over 2,000 sq. ft. Mr. Worsdell, however, in his new North Eastern type, has boldly gone in for six-coupled wheels and has possibly been led to make this new departure by the almost universally favor-

followed by 8 miles a good deal of which is 1 in 200 up to Grant's House, the highest point between York and Edinburgh. Five miles, nearly all at 1 in 96 down, followed by 1½ miles at 1 in 210 down, succeed this. The rest to Edinburgh, except a short piece of 1 in 78 entering that city, is composed of easy undulations. Formerly the whole of this length, right through from Newcastle to Edinburgh, was worked by the North Eastern Company's locomotives, although the North British Railway owns the line north of Berwick. The latter company has, however,

served 30 years, may retire from active service, or may be retired arbitrarily by the managers. The age of universal compulsory retirement is 70. The pension allowance will be a percentage of the average pay which has been received by the employee for a specific number of years (not necessarily the whole term of his service). Members of the Relief fund will receive an additional allowance based on their payments while members of that fund, this to be paid out of the interest on the surplus of that fund. The Relief fund rules will probably be changed so



Ten-Wheel Express Locomotive of the North Eastern Railway, England.

able reports which come not only from America but also from the Nord, the Est and the Midi of France, all concurring in praising the suitability of this type for fast express trains of great weight.

A glance at the railway map of England will show that such trains must frequently be met with on the North Eastern main line. Forming, as it does, an important link in the East Coast route of communication between England and Scotland, North Eastern locomotives have always been called upon for high speeds, and, at certain times of the year, as for instance during the Scotch tourist season and especially for the few days before the grouse shooting commences, the trains get very heavy and range from 200 to 250 long tons (weight of engine and tender not included). As there are a good many runs at about 50 miles an hour from start to stop, it will readily be conceded that locomotives of considerable power are needed to perform the work, and these the company already have, as may be seen from a glance at the photograph representing No. 1869, which shows one of the latest types of four-coupled express. Mr. Worsdell, however, desirous to have a machine of sufficient capacity not only to work these Scotch expresses with punctuality, but also to make good any contingent delays which, on so crowded a track as the North Eastern main line, would perhaps throw a heavy traffic completely out of gear, has designed the fine six-coupled machine (No. 2,001) of which the massive appearance and graceful outlines are shown in the illustration, which is reproduced from a photograph specially supplied by the company. The leading dimensions are set forth in the table.

Ten-Wheel Express Locomotive, No. 2,001.

Cylinder dimensions	20 ins. by 26
Diameter of Driving Wheels	6 ft. 1¼ ins.
" " Bogie Wheels	3 ft. 7¼ ins.
Heating Surface, Tubes	1,639 sq. ft.
Firebox	130 sq. ft.
Grate Area	23 sq. ft.
Boiler Pressure per sq. in.	200 lbs.
Weight on Bogie Wheels	36,960 "
" " Coupled Wheels	35,840 "
" " Coupled Wheels	35,840 "
" " Coupled Wheels	35,840 "
" " Tender (loaded)	87,360 "
Coal space for	5 tons
Water capacity	3,782 gals.

The gradients of the North Eastern main line are not severe, and the locomotive suffers less delay from this cause than from the generally crowded state of the metals, the awkward entrance to and exit from the Newcastle station, the curves at Morpeth and elsewhere and the severe gales so often met with on the exposed coast line north of Newcastle. From York the rise is gradual for about 55 miles to near Ferryhill on various gradients averaging 1 in 600, but in this stretch are several short descents at very easy rates of fall. After Ferryhill the line descends for six or seven miles more steeply, then rises five miles averaging 1 in 150, and after this follows a drop of eight miles of 1 in 150, and easier into Newcastle.

Leaving Newcastle the line mounts gradually for about 10 miles, followed by undulations of 1 in 250, 1 in 228, and easier, for 25 miles, with a general downward tendency, then mounts steeply five miles of 1 in 170, drops, three of 1 in 150, and is then level, or nearly so, for 10 miles. The next 13 miles to Berwick consists of a descent and ascent of equal lengths, averaging 1 in 200. Then we have nearly five miles of 1 in 190 up, and about four miles level,

recently taken an active share in the hauling of express trains over its own part of the route, with conspicuous success.

The full East Coast service between London and Edinburgh is shown in the table below. The distance is 392½ miles, and the best speed is just under 48 miles an hour.

Leave London.	Arrive Edinburgh.	Time on Journey.	Leave Edinburgh.	Arrive London.	Time on Journey.
a. m.	p. m.	hrs. mins.	a. m.	p. m.	hrs. mins.
5:15	5:05	1:50	10:00	6:30	8:30
10:00	6:30	8:30	10:20	8:30	10:10
11:20	7:45	8:25	p. m.		
p. m.			12:20	8:45	8:25
2:20	10:45	8:25	2:20	10:45	8:25
	a. m.			a. m.	
7:45	3:30	7:45	2:50	2:40	11:50
8:15	4:00	7:45	6:25	3:10	8:45
8:45	6:00	9:15	7:35	5:50	10:15
11:30	7:15	7:45	9:40	6:40	9:00
			10:50	7:10	8:20
			11:15	7:35	8:20

The photographs illustrating this article have been supplied by the North Eastern Company's Locomotive Department.

Pennsylvania Railroad Pension Fund.

The decision of the Directors of the Pennsylvania Railroad to establish a pension fund was noticed in the Railroad Gazette of August 4, page 555. Philadelphia papers have since given some of the particulars concerning the new department. It is planned to put the scheme in effect January 1, 1900. The number of employees affected, being all of those on the lines east of Pittsburgh and Erie, will be 75,000 and the annual outlay is estimated at \$325,000, which is \$25,000 larger than the estimate before published. While the money will be furnished entirely by the company, this fund will be conducted in harmony with the Relief Association and the company will

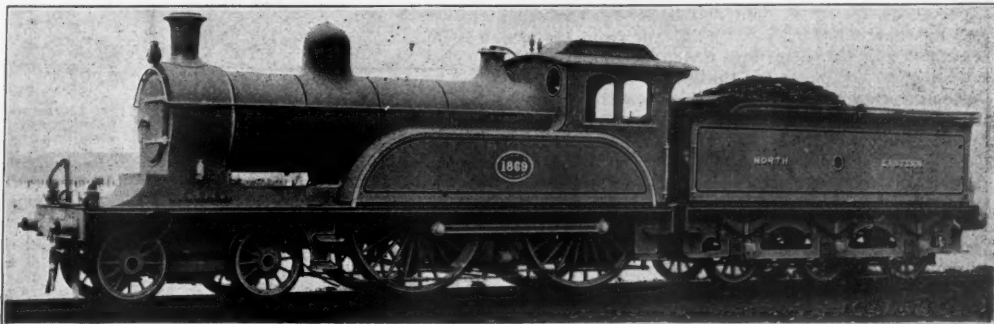
that after 52 weeks a disabled person will receive benefits at half rates.

It is stated that the pension roll will start January 1 with a membership of 775, of whom 672 will be 70 years old or over. The number now in the service over 60 years old is 3,000. Fifty men are over 80. Ninety-nine men on the Delaware & Raritan Canal have been in the service of the company more than 45 years; one has worked 63 years and another 61. Hereafter no person will be taken into the permanent service of the company who is over 35 years old and none will be accepted unless they pass the prescribed physical examination, though former employees may be reinstated at the discretion of the committee, regardless of these conditions.

Northwestern Track Elevation in Chicago.*

Substantial progress has been made during the year covered by this report in the work of elevating the tracks of the company within the city limits of Chicago as required by certain ordinances and to which reference was made in the last annual report to the shareholders.

The section between Clybourn Junction and Mayfair was completed in June, 1898, and the work of elevating the tracks on the Wisconsin Division between Chicago avenue and Wrightwood avenue will be completed in July, 1899. Between Chicago avenue and Wrightwood avenue the work consisted of elevating three tracks for a distance of one mile and six tracks for a distance two miles which is the equivalent of 7½ miles of double track railway; it includes the construction of approximately five miles of rubble masonry retaining walls and the equivalent of 5,085 lin. ft. of double track steel bridging resting on stone piers and abutments and spanning 19 subways and four foot passageways; it also includes one drawbridge and one railway subway. As



Standard Eight-Wheel Express Locomotive—North Eastern Railway.

discontinue paying gratuitous sick benefits to members of the Relief fund who are disabled more than 52 weeks at a time. The benefit of the pension fund will, however, be enjoyed by all employees without regard to their membership in the Relief fund. The managers of the pension fund will be Messrs. Green, Pugh, Prevost, Rea, Hutchinson and Riebenack. Employees over 65 and under 70 years of age, having

a result of this work four streets were closed and 27 grade crossings eliminated.

With the completion of the work last referred to the company will have complied with all of the track elevation ordinances affecting it, thus far passed by the Common Council of the city of Chicago.

*From the Annual Report of the Chicago & Northwestern.

cago (with the exception of elevating 4,700 feet of the Chicago Cut-Off south from Mayfair to be completed during the ensuing fiscal year) and will have elevated to a maximum height of 10 ft., 14 $\frac{1}{2}$ miles of its Chicago Terminal varying in width from 66 to 100 ft. This will include the construction of 90 subways, five foot passageways, one railway subway and one drawbridge. Fifty-five streets crossing the company's right of way in the city of Chicago have been closed and 150 grade crossings eliminated. The tracks of the company in the city of Chicago thus

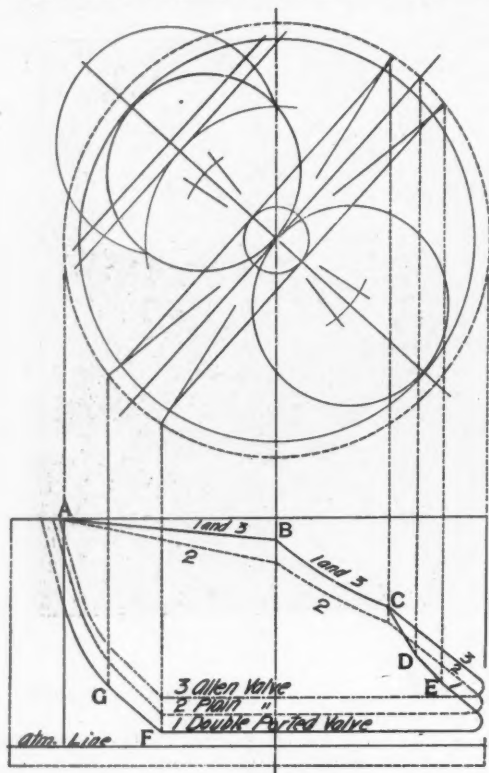


Fig. 3.—Comparative Cards with Double Ported and Other Valves.

far elevated reduced to the basis of a double track railway are equivalent to 27 $\frac{1}{2}$ miles and include the equivalent of 15,378 lin. ft. of double track steel bridging.

In addition to the foregoing, the company has contributed one-quarter of the cost of elevating the tracks of the St. Charles Air Line in Chicago, in which property it owns a one-quarter interest. This elevation begins on the right-of-way of the Illinois Central Railroad on the Lake Front, and extends westwardly along Sixteenth street to a point about 600 ft. west of the south branch of the Chicago River. The section elevated is 52 ft. in width and was raised about 16 ft., giving a clearance of 14 $\frac{1}{2}$ ft. at streets without depressing them, except at Clark street, where the street was depressed about 5 ft. Retaining walls were built of sandstone blocks on each side of the right-of-way and space between filled with slag. Plate girders were constructed carrying four tracks across Michigan avenue, Wabash avenue, State street, Dearborn street; three tracks across Indiana avenue and two tracks across Clark street, thereby abolishing grade crossings at these important city thoroughfares.

The Richmond Double-Ported Valve.

The Richmond Locomotive Works have recently adopted and applied for use on their compound locomotives an improved slide valve which has given good results as regards speed, power and economy, and particularly at high speeds. The essential features of the design of this double-ported valve, as well as some comparative results got from its use, are shown in the diagrams which accompany this article. The argument for the use of this valve and the description of it cannot be better stated than in the words of Mr. Mellin, Engineer of the Richmond Locomotive Works, which follow.

Few American railroads of importance have overlooked the Allen ported valve in the attempt to perfect steam distribution at the high speeds now in vogue, and while it has its advocates, there has also arisen a swarm of objectors, whose complaints, if rather ambiguous, are not wholly without foundation, and become more prominent as the initial pressure is increased.

As a steam admitter, the Allen valve is all we can ask for, but as an exhaust, it leaves much to be desired.

The larger the amount of the steam admitted to the cylinder, the longer the time required for it to escape through a given opening, and the maximum opening of the exhaust is not as efficient proportionately as the lesser area exposed during the first portion of the exhaust period, for the reason that

when the exposed area of the port equals the area of the exhaust nozzle, it is evident that no further increase of exhaust port opening can materially assist in the liberation of the steam.

As the piston speed increases, we shall find a certain velocity after which there is no decrease of

admission period, as with the Allen. The use of this device on our compounds has enabled us to secure high speeds and low back pressures with a comparatively small valve.

It will be apparent from a study of the diagram that the auxiliary port acts as an exhaust port only

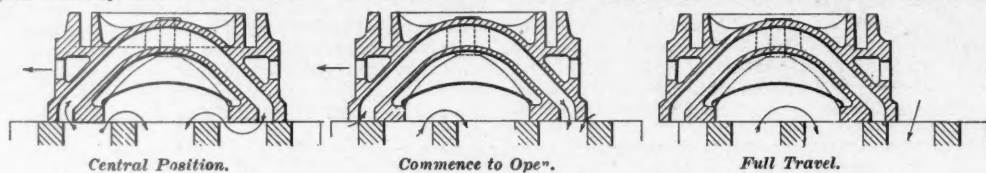


Fig. 1.—Richmond Locomotive Works—Double Ported Valve

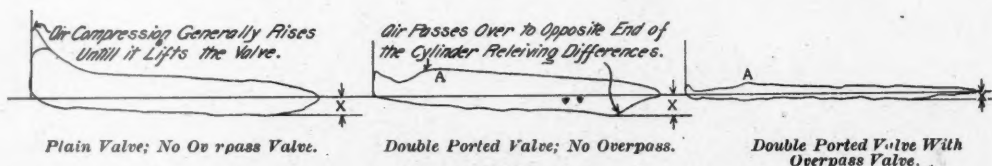


Fig. 4.—Drifting Cards.

X = Amount of Suction from Smoke Box.

back pressure during the return stroke of the piston, so that any increase of exhaust opening after the end of the stroke is practically valueless. It follows, therefore, that the higher the pressure at the end of the stroke, the higher the back pressure at these speeds.

It being evident that a quicker exhaust opening

during the earlier portion of the exhaust period, and that before the piston starts on its return stroke its function as an exhaust passage ceases, and it admits live steam to the appropriate end of the cylinder.

The engraving, Fig. 1, shows in section the three positions of the valve, the direction of the steam

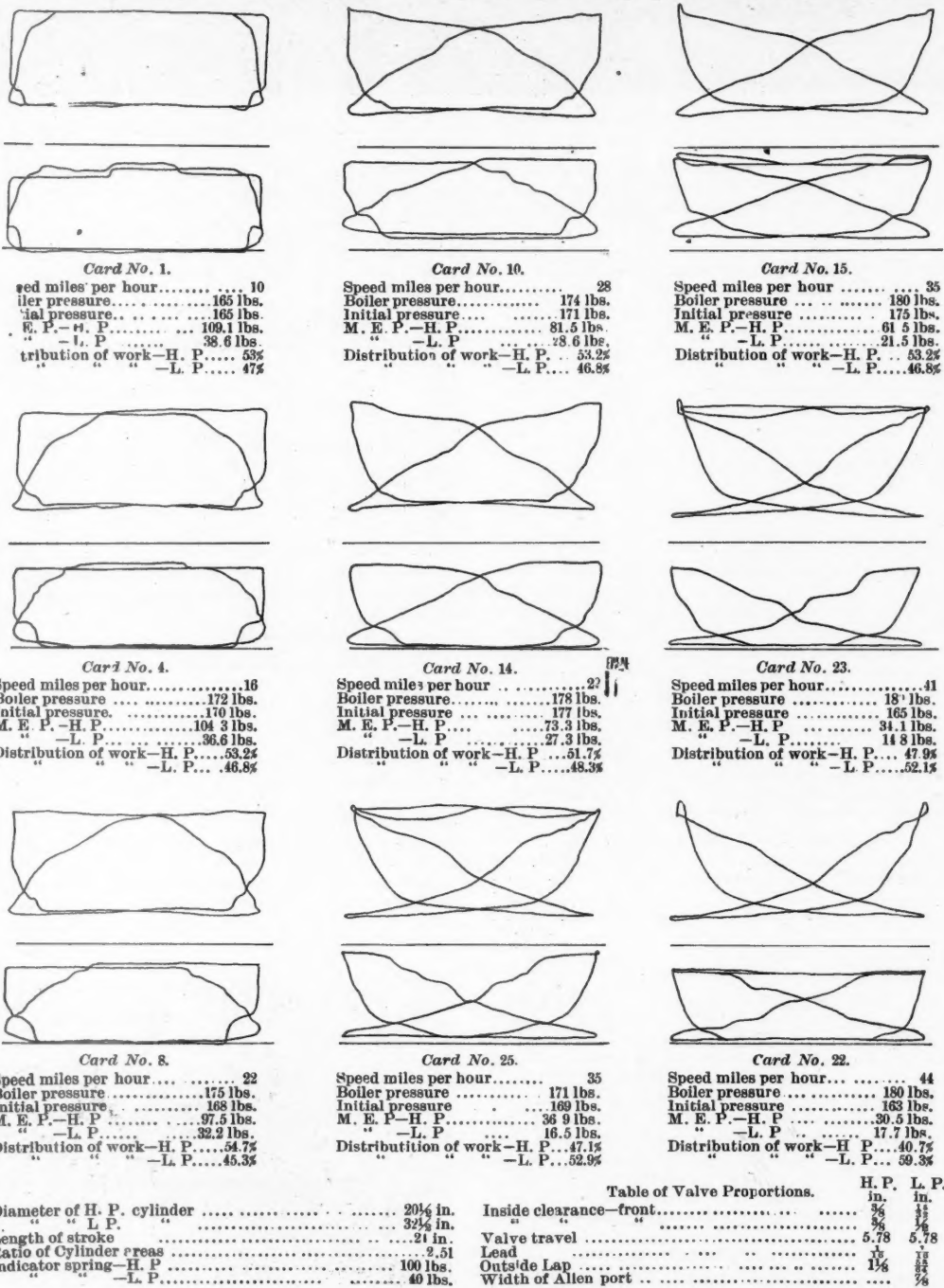


Fig. 2.—Indicator Cards from Richmond Compound Locomotive No. 1,522—C. B. & Q. RR., March 1, 1898, Low Pressure Cylinder with Double Ported Valve.

was a prime desideratum, we designed and applied with marked success, to our compound engines, a type of valve which we call double-ported, in contradistinction to the Allen valve, as the port opening is doubled for a given movement of the valve at the beginning of the exhaust period, and not merely the

currents being indicated by arrows, and the other cuts will show the action of the steam in the cylinders. The diagrams shown in Fig. 2 are taken from an engine equipped with this valve, and explain themselves.

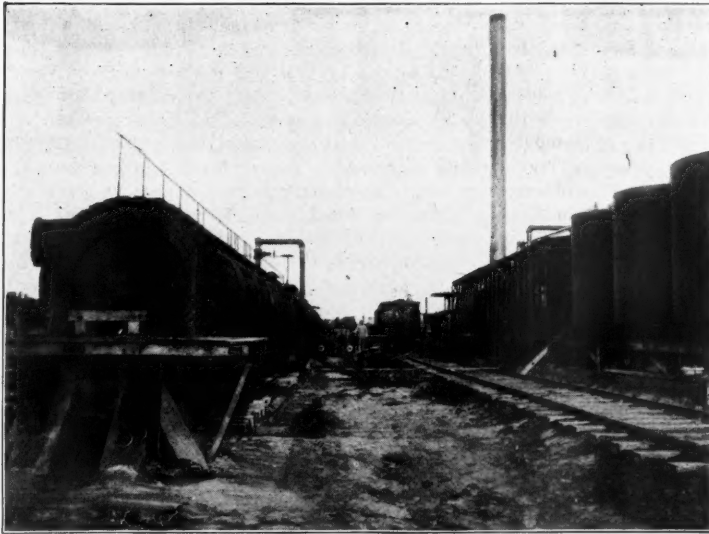
For the purpose of illustrating the difference be-

Table of Valve Proportions.		H. P.	L. P.
		in.	in.
Inside clearance—front	.....	3/8	1/2
Valve travel	.....	5.78	5.78
Lead	.....	1/8	1/8
Outside Lap	.....	1/8	1/8
Width of Allen port	.....	1/8	1/8

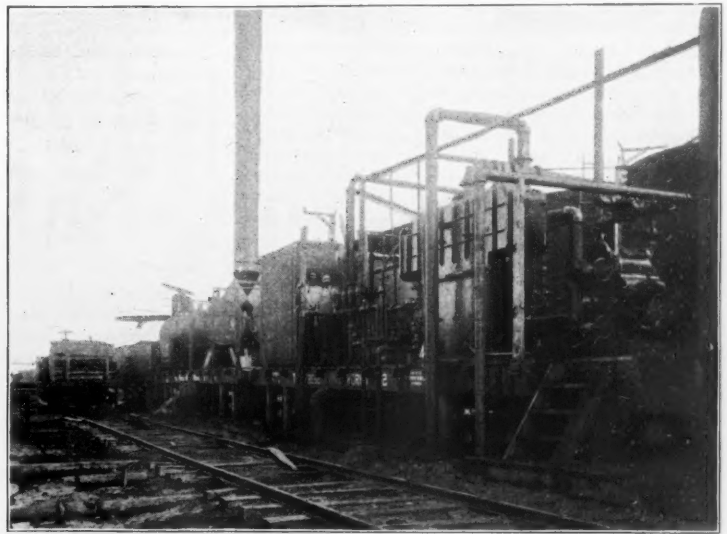
tween the double-ported, the Allen and the plain valve, Fig. 3 has been prepared to show their respective behaviors when cutting off at half stroke. The full line No. 1 represents an indicator diagram from a double-ported valve, the dotted line No. 2 that of a plain valve, and the broken line No. 3 that of Allen valve; all conditions being equal with the exception of the auxiliary port. The diagram is laid down with the assumption that the steam has the

The Mt. Vernon plant consists of the following parts:
1 retort 117 ft. long and 6 ft. in diameter; made in two sections.
2 boilers of 50 h.p. each.
1 condenser of about 300 h.p. capacity.
1 air pump and 1 water pump.
1 steel measuring tank, 8 ft. x 5 ft. x 8 ft. high.
8 steel storage tanks, each 9½ ft. in diameter by 9½ ft. high.

and mixed to make it perfectly homogeneous, its strength being varied from time to time to suit the condition of the ties. The amount which is to be injected is ascertained and controlled by three successive steps.
First, the retort is gaged with the empty cars and wire ropes inside, and its cubic contents ascertained. Then when the retort is filled with the cars carrying ties to be treated, and the zinc solution is admitted,



Retort and Storage Tanks—Portable Tie Treating Plant.



Machinery and Boilers—Portable Tie Treating Plant.

same velocity at corresponding points of the different diagrams.

The admission and expansion lines from the Allen and double-ported valve of course coincide, but the exhaust and back pressure lines indicate a decided advantage in favor of the latter.

From the release point, C to E, the effect of the auxiliary port shows plainly, while the area of the exhaust nozzle is still considerably in excess of the port opening. The resulting lower final pressure effects a lower back pressure during the return stroke.

The admission, and consequently the expansion, line of the plain valve falls below that of the other valves; the release is proportionately lower, and as the area of the exhaust opening is the same as in the Allen, the exhaust line will be beneath it all the way, while the exhaust line of the double-ported valve crosses that of the plain valve at an early position of the exhaust period.

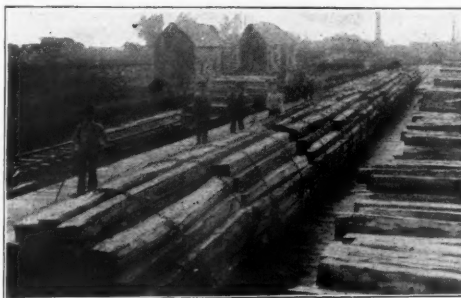
Another advantage of the double-ported valve is illustrated by Fig. 4, representing cards taken while drifting. The entrained air is compressed to the point A, when the auxiliary port relieves the pressure before the piston arrives at the end of its stroke by letting the air over to the suction side of the piston, and the final compression is much lower than would be the case with the plain valve.

A New Portable Tie Treating Plant.

A new tie treating plant was put in operation July 17 by the Chicago Tie Preserving Co., at Mt. Vernon, Ill., which is notable for the means provided for accurately controlling and checking the various operations. The engravings show the general arrangement. The works were built to treat black, red and water oak, all perishable woods lasting about four years, for the Chicago & Eastern Illinois, but as the capacity of the plant is about 1,000 ties a day and the present requirements of the road are only about 100,000 ties a year, the plant has been made movable by putting the retort on trucks, putting the boilers and machinery on cars, and arranging the tanks, platforms, and other parts so that they can readily be loaded on flat cars. The whole plant when loaded would make a train of from ten to sixteen cars, ac-

5 wooden storage tanks, each 9½ ft. in diameter by 9½ ft. high.
2 vats, lead-lined, for making zinc chloride.
2 tubes for mixing gelatine, and for tannin.
1 platform 320x22 ft., with a 6-ton scale.
45 retort cars and 1 Lidgerwood winch.
An elaborate system of piping, valves, etc.

The preservative method used is the "zinc tannin" process, as improved in 1896 by the Chicago Tie Preserving Co. This consists of first steaming the wood, extracting the sap by a vacuum, and then injecting successively three solutions: First, chloride of zinc; second, gelatine, and third, tannin. The two latter do not penetrate very deep, but form particles of



Unloading Platform—Portable Tie Treating Plant.

artificial leather in the outer sap cells, which retard the washing out of the zinc.

Wood has heretofore been injured by over steaming and in order to preclude the possibility of this in the new plant the steam is controlled by three devices, a steam pressure regulator, a pressure gage, and a large thermometer permanently inserted in the retort. By these the steaming is regulated to a nicety, and never exceeds 20 lbs. pressure or a temperature of 260 deg. Fh.

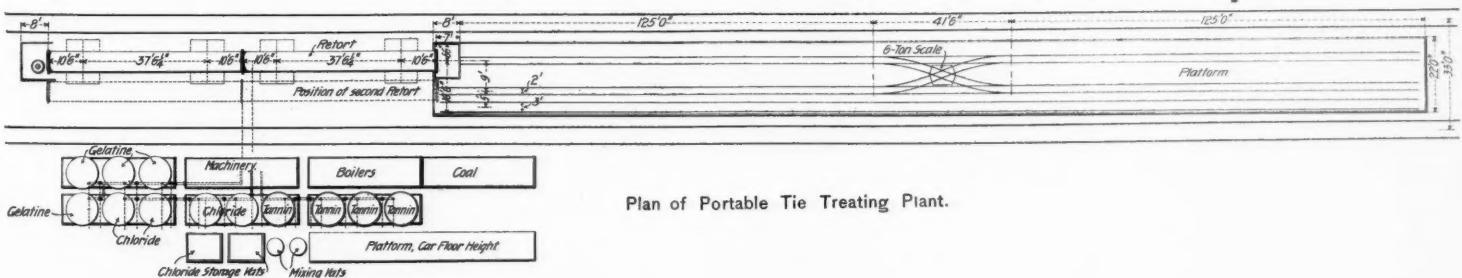
Instead of running the vaporized sap directly to waste, as formerly done, it is now passed through a condenser surmounting a measuring well, the process continuing until the desired quantity has been extracted. This feature was copied from the Southern Pacific plant, and it is generally a surprise to the

readings of the indicator boards show how much solution has run in, and hence the number of cubic feet in the charge can be determined. Again, after the surplus solution has been forced back by compressed air into the tanks the difference between the original and the final readings show how many gallons or pounds have been forced into the ties by pressures of 100 lbs. or more per square inch.

Second, when the zinc solution has been run in, and the pump begins to apply pressure, the supply is no longer taken from the main tanks, but from a special measuring tank, accurately gaged, and the pumping is continued until the pre-determined amount has been absorbed by the ties. It is thus accurately known just how many gallons (generally 3½ gallons per tie) have been forced into the charge of, say 560 ties.

This, however, does not show how much each tie has taken, and having ascertained by hundreds of experiments that serious differences exist in the receptivity of various ties (extreme cases vary as much as 8 to 1) a third step is now introduced to limit this uncertainty by weighing each truck load of say 40 ties both before and after treatment. If any one load is found to have taken less solution than is determined upon, that truck is switched out and treated again. Thus far it has been found that the results of this weighing agree surprisingly well with the results obtained by gaging; the computations from the latter showing 217,856 pounds of solution absorbed by the first 11 runs, while the actual weighing showed 217,875 pounds, or an average of about 10 tons of solution per run.

The opportunities for doing good work in treating ties on the Chicago & Eastern Illinois are said to be unequalled. The ties are all cut in the winter, they are cribbed up when first delivered along the line, and the date is painted on the pile; they are then loaded to be taken to the treating works in the order of date, so that all may season about equally. Hence the amount of solution absorbed per truck load is not found to vary more than thirty per cent. The Tie Preserving Co. is so well satisfied that exceptional results will be realized, from 12 to 15 years in the track, that it not only stamps the year of treatment on the end of the tie in the usual way, but it has provided zinc coated nails, with countersunk figures



Plan of Portable Tie Treating Plant.

cording to the requirements at a new location. This work has been done under the patents of Mr. W. G. Curtis and Mr. J. D. Isaacs, of San Francisco, the arrangement being similar to that of the movable plant of the Southern Pacific described by Mr. Curtis in our issue of February 8, 1895. Indeed, we would advise anyone interested in the subject to read that article.

casual visitor to see about half a gallon of sap and condensed steam extracted from a tie apparently as dry as a bone, to make room for the chemicals to be injected.

The important solution injected is that of chloride of zinc, which is the anti-septic used. This is contained in four of the steel storage tanks, equipped with indicator boards, and is mechanically heated

in the head, which are driven in the ties to make sure that no question shall hereafter arise as to the date of treatment.

The works were built under the direction of Mr. O. Chanute, Civil Engineer, and are operated by his son, Mr. C. D. Chanute, who is a chemist. It is believed that the treatment of about 100,000 ties will warrant moving the plant.



ESTABLISHED IN APRIL, 1856.
PUBLISHED EVERY FRIDAY,
At 32 Park Place, New York.

EDITORIAL ANNOUNCEMENTS.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussion of subjects pertaining to all departments of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers, can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially either for money or in consideration of advertising patronage.

On another page will be found an account of the new tie preserving plant which Mr. Chanute put in operation a month ago, near Chicago. This article with that by Mr. W. G. Curtis, which was published in our issue of February 8, 1895, show very well the present state of the art of wood preserving. Indeed, Mr. Curtis's article is the best thing on tie preserving that has been published in recent years, perhaps ever. The reader who goes carefully over these two articles will be struck with the fact that the treatment of timber for preservation is a process a good deal more delicate and accurate than was suspected a dozen years ago; but American engineers have now brought it to a state of practical efficiency, which ought to produce important results within the next few years, and we hope that Mr. Chanute's zeal and pertinacity will be largely rewarded.

The Chronicle's compilation of railroad gross earnings for July shows that month to have been one of the best of the recent revival. The increase as compared with July last year is \$7,637,625, or over 17 per cent. Out of 116 roads reported, 102 showed gains. This is the heaviest gain in any month since November, 1897, which month was compared with a month of depressed business in the year of the Presidential election. In the July gains, the New York Central stands at the head with an increase of more than \$1,000,000. Next comes the Chicago, Milwaukee & St. Paul with \$849,000; then the Great Northern, the Mexican Central, the Northern Pacific, the Baltimore & Ohio, the Canadian Pacific and Illinois Central show gains of over \$300,000 each; while the Louisville & Nashville ought to be classified with these roads, as its gain is \$299,913. The Grand Trunk gained almost a quarter of a million and the Wabash close to \$200,000. Then the Norfolk & Western, the Missouri Pacific, the Mobile & Ohio, the Missouri, Kansas & Texas, the Hocking Valley, the Cleveland, Cincinnati, Chicago & St. Louis and the Southern show gains of over \$100,000 each.

The Public, the Railroads and Rate-Cutting.

Railroad Commissioners from 21 states met in Denver last week and discussed at some length the functions of their respective offices and the work that they have done during the past year. The meeting was, no doubt, profitable to the participants as far as it went; but President Jeffery, of the Denver & Rio Grande, enticed the delegates away from the convention hall to see the grand Rocky Mountain scenery which he "controls" (to use a traffic manager's expression) and of which he has a three days' supply, and they did not go into any of their topics very deeply. At least, this we judge from the somewhat fragmentary report that our correspondent sends us.

Chairman Knapp of the Interstate Commerce Commission made the most practical address of the

meeting. He emphasized the need, which few public officers seem to duly appreciate, that a commissioner who represents the transportation interests of the public shall have the confidence of the men who manage the railroads. Mr. Knapp has demonstrated this point by actual experiment during the past year. His conferences with railroad presidents in different parts of the country have apparently produced significant changes in the attitude both of the railroads (many of them) and of the commission; and probably it is not too much to say that the methods of traffic competition have been considerably improved.

The questions on which legislatures and railroad managers differ, and which it is the duty of commissioners to harmonize, are so obscure and so difficult, are in such large measure unsolvable, even by the wisest heads, that friendly and informal conference is often the only possible treatment that can be applied to them with any hope of a profitable outcome; so that this lesson of Mr. Knapp's address is of the highest importance. Even a Populist commissioner, who is ex-officio at constant enmity with the railroads, can do most by reaching an understanding with the carriers which he is set to "regulate"; and the difficulties of transportation problems being recognized, it is as plain as day that sensible discussion is the first and most important need.

Mr. Knapp appears to have foreseen that the Denver convention would not give much serious attention to the railroad problem, and he delivered the principal part of his speech at Chicago, on his way out. The occasion was a dinner of the National Association of Merchants and Travelers, and the address has attracted much attention. Vice-President Paul Morton, of the Atchison, Topeka & Santa Fe, made an address at the same dinner, and as both gentlemen declared that pooling ought to be legalized some editors are now assuming that this agreement of views is a hopeful indication that the Government and the railroads may at last have reached a point where useful legislation can be had. We suggest to those who entertain this hope to read the reported utterances a little more carefully. We shall not say that the public is not making progress in knowledge of railroad problems, or that Congressmen may not by this time have acquired more intelligent views on pooling and rate regulation, but neither Mr. Knapp nor Mr. Morton said anything to indicate a change from their respective views which were well known before.

Mr. Knapp believes in pooling, but also believes in making the railroads submit to more direct and effective control of the Commission, before Congress gives them leave to pool. Even if he, personally, were to modify this view, it is likely that the Commission as a whole—the majority—would adhere to its former recommendation to Congress; that is, to first give the Commissioners power to correct rates deemed by them unjust, and then consider the legalization of pooling.

As for Mr. Morton's advocacy of a law giving the Interstate Commerce Commission supervisory power over intra-state rates—he means, no doubt, the same degree of power that the Commission now possesses concerning interstate rates, which is not alarmingly great; and, moreover, the change proposed would require an amendment to the Constitution of the United States, so that we need not apprehend that Mr. Morton expects to produce anything in the nature of a revolution just at present.

On the present state of transportation affairs Mr. Knapp spoke as follows:

"I undertake to say that if the worst enemy of the railroads whom you can name were elected President of the United States, and if he should pack the Interstate Commerce Commission with the worst Populists of the land, those men would never dare to do the reckless and indecent things which the managers of railroads themselves have done. Can you name any five men so ignorant, so prejudiced, so inimical to the common interests of the country that they would upset the commerce of the country and demoralize rates and business in the way the railroad men have done by putting in force the rates that now prevail to the seaboard by way of Galveston from the Missouri River? Would they let the Missouri River rate be as low as the Chicago rate? Would they allow flour to be carried from Minneapolis to the Atlantic cheaper than from Chicago? In such things the railroads are making a fearful misuse of their power."

It seems to us that the two instances selected make pretty good points for the argument on the other side, the argument not to empower a single body to make rates throughout the United States, but to let the competing forces of the commercial world work out their natural results. All will agree with the eminent chairman that Populists often mean well, and that they are not all of them prejudiced or enemies of the railroads; also that railroad managers who designedly violate a plain and wholesome law are guilty of "indecent" conduct; but these phrases, as used in the Chicago ad-

dress, do not illuminate the point at issue. Well meaning traffic managers sometimes disturb the business of the country, as well as the reckless ones, because, in many cases, there is no way to build up the traffic of one place without temporarily damaging that of another; and there is no assurance that a National Commission would be able fairly to adjust business rivalries, just because the members aimed to do well. A large proportion of our freight rate troubles are inevitable, whether their regulation be in the hands of the railroads or of a Government Commission.

Take the case of the rates from New York by water to the Gulf of Mexico and thence to Kansas City (which, presumably, is the situation first referred to in the above quotation). In the first place, the quantity of goods moved by this roundabout route is very small, as may be seen by the gingerly manner in which the Chicago-Kansas City roads go about getting back the share of the traffic that they have lost. The disturbance of business is, therefore, much worse when the daily newspaper writers are in need of copy than it would be if there were a plenty of legitimate news to fill their space. But suppose the quantity were large. On what grounds has the Burlington road any better right to this freight than the Kansas City, Pittsburgh & Gulf, if the shipper is willing to put up with the slower time of the Gulf route? Would a Commission, controlling coastwise vessels, raise rates and throw some of the steamers out of business? Possibly the vessels and the new railroad from the Gulf could afford to underbid the Pennsylvania and the Burlington on some kinds of traffic between New York and Kansas City without violating the long and short haul principle. But whether they could or could not, the principles laid down by the Supreme Court in the Texas & Pacific case (concerning shipments from Liverpool to San Francisco via New Orleans) probably would afford pretty strong legal ground for their present position.

Rates from Minneapolis to the Atlantic would probably be still harder to keep within rigid bounds. An advance by way of Chicago would send the shippers to the Canadian Pacific, and that road, with its short line and surplus facilities, could afford to make a very low rate. Should the shippers be denied the privilege of this short route? Who would be benefited by compelling the roads via Chicago to make an advance? To compel a reduction from Chicago (proper) eastward would deprive the Minneapolis-Chicago roads of some business and would punish the Eastern roads; and a reduction from Chicago would perhaps compel reductions from St. Louis (and to the Gulf as well as to the Atlantic); so that a score of railroads would be made to suffer to punish a few (not among the score); and all for a benefit to Chicago grain men which would hardly be appreciable.

But while we cannot agree with Judge Knapp as to the proper punishment of railroads which are willing to give the shipper a longer carriage for his money than he deserves, we can heartily commend his clear explanation of the difference between a "trust" and a pool of railroad earnings. It is to be hoped that every Congressman will paste this part of the speech in his hat. Every right minded citizen, railroad men and non-railroaders, will also agree that rate cutting ought to be made dangerous and disreputable. But to rigorously enforce the criminal statutes, the Commission will need a very much larger appropriation than it has yet had; and we fear that Congress will not grant it.

Annual Reports.

Chesapeake & Ohio.—The annual report for the fiscal year to June 30, last, is already at hand, being issued with commendable promptness, and records the best results that have ever been attained by the company in gross and net revenue, in surplus, and in transportation efficiency, as measured by the train load. The revenue changes, however, are not large, being less than any recorded since the recovery from the low point of 1894 began, amounting to only \$221,282 in gross and \$126,202 in net. A year ago, however, the increases were extraordinary, over one million dollars in gross and \$385,000 in net. The receipts in 1898 were exceeded in the past 12 months only because passenger travel gained heavily, \$486,000 in the year, offsetting the loss of \$200,000 in freight and a falling off in miscellaneous business.

The balance over all fixed charges, was \$706,000, so that for the second time since the reorganization of ten years ago, a dividend in excess of one per cent. has been earned on the stock, the 1898 surplus having also been slightly above 1 per cent., and the Directors have just declared a dividend of 1 per cent. A comparison of the earnings for a series of years shows that the company's revenue has had a great development, while, as is well

known, the rates obtained have all along been abnormally low, and constantly declining. During the past year the seaboard rate on coal fell to 2.21 mills per ton-mile, against 2.59 mills in 1898, while the rate on all freight dropped from 3.70 mills to 3.62 mills per ton-mile. On general business alone, the rate was unchanged. In 1893 gross receipts for the first time exceeded \$10,000,000 and net \$3,000,000, and the totals did not again reach these figures for several years.

The course of gross and net receipts and the surplus over charges since 1893 are shown below, the figures being based on 1,276 miles of operated line:

	Gross earn.	Net earn.	Surplus.
1899	\$12,009,839	\$3,932,455	\$766,130
1898	11,788,557	3,896,250	618,510
1897	10,708,193	3,421,412	302,142
1896	10,221,131	3,257,978	147,341
1895	9,596,031	3,131,503	18,706
1894	9,044,108	3,016,981	14,060
1893	10,349,765	3,202,934	423,760

The company has had to increase its tonnage very heavily to add so largely to its revenue, with its ton-mile rate falling rapidly each year. What has been done in this direction is brought out by the following table, giving the tonnage and ton-miles, as well as the ton-mile rates for the last seven years:

	Tonnage.	Ton miles (in thousands.)	Rate on seab. coal (mills.)	Total ton-mile rate (mills.)
1899	8,130,661	2,506,000	2.21	3.62
1898	7,806,914	2,513,221	2.59	3.70
1897	6,491,297	2,000,000	2.97	4.19
1896	5,544,800	1,836,025	2.53	4.26
1895	5,671,200	1,720,788	2.93	4.25
1894	4,794,100	1,387,891	3.20	4.78
1893	5,498,900	1,479,487	3.27	5.11

The drop in the freight rate has therefore been uninterrupted, and has amounted to 1.49 mills in the period covered by the figures, or nearly 30 per cent. The seaboard coal rate has alone dropped 1.06 mills, or over 32 per cent., while the rate on general freight has declined from 6.43 to 4.37 mills, also 32 per cent. But in spite of this heavy fall in rates, the company has by skill and care steadily increased its profits, and in bringing this about the advantageous working of the freight equipment has played a great part. The road has become famous for its great train-load, which now averages 425 tons, much the heaviest that we know of.

It will be seen that there was a steady growth of traffic, as measured by ton-mileage in each year since 1894 up to the present. In 1899 the tons carried increased 323,700 tons, but there was a slight decrease in the ton-mileage. This is attributable chiefly to the less amount of grain carried, that business decreasing 7,965,000 bushels. President Ingalls says that this falling off was because of a policy to retire from through business, when the rates had been reduced so low that it was unprofitable to carry it when the cars had to be returned empty. The profit on seaboard coal at the extremely low figures obtained was possible only because 80 per cent. of the haul was in favor of the traffic. To partially offset the loss in through tonnage, local business increased, but although the tons carried were larger than in 1898 the freight revenue, as said before, fell off. The coal tonnage was practically uniform in the two years, the amount being 4,408,420 in 1899, and 4,474,800 tons in 1898, the loss shown by these figures being almost entirely accounted for by the less amount used for fuel by the company, such tonnage being 550,000 in 1899, against 617,600 in 1898.

The details of the expenses show that maintenance of way cost \$1,527,000, maintenance of equipment, \$1,673,000 and conducting transportation, \$3,246,300. The maintenance accounts show an increase of \$200,000, while expenses on transportation account fell off \$166,000, and the Newport News and Norfolk Terminals cost \$111,000 less; the maintenance accounts were 40 per cent. of the total expenses, and provided, President Ingalls states, not only for ordinary renewal and replacement requirement, but also for many improvements.

We may point out that for maintenance of way over \$1,200 per mile was expended in 1899, while the average annual charge on this account for the last five years has been \$1,378,000, equivalent to \$1,080 per mile of road. During these years and for a longer period, the company has not charged any improvement work to capital account.

The expenses for 1899 included the cost of 20 miles of sidings (\$87,507, less credits); 210,000 yards of new ballast, and 6,148 tons of 100-lb. rail, 8,431 tons of 75-lb. rail and 15,103 tons of all sections, at a cost less the credit for sales of rails taken up, of \$155,963. This work was in excess of ordinary requirements, the need of rails for sidings and branches being availed of to renew the rails in the main line. The replacement of wooden structures on the Peninsula division with stone and iron, was continued. The equipment expenses were large, particularly for freight car work. During the year 623 cars of small capacity which it was not advisable to equip with safety appliances were replaced with larger cars at a cost of \$299,616, which were charged to expenses. Ordinary freight car repairs amounted to \$497,125; locomotive repairs cost \$386,158 and the cost of four new engines, \$47,363, was also charged to repair account. The new equipment purchased during the year consisted of 1,000 box cars and 1,000 coal cars payable through five-year car trusts. The equipment consisted on June 30, 1899, of 355 locomotives

and 212 passenger cars and 16,122 freight cars and on that date only 1,714 freight cars remained to be equipped with automatic couplers; the whole work will be completed within six months.

During the year \$1,000,000 4½ per cent. bonds were sold, and \$1,000,000 additional is held unsold in the treasury, but available for construction purposes. The most important of this work is the new terminal at Newport News, costing \$500,000, and the rearrangement of the Richmond terminals, which has long been under discussion. The latter improvement involves the erection of an elevated structure through the city of Richmond and a new passenger station, the whole to cost \$1,500,000. A new line into the Greenbrier valley is to be built and 30 miles of new double track, giving, with the 98 miles already in operation, practically a double track from Richmond to the New River coal district, the company having two lines from Richmond to Clifton Forge.

A man connected with an important road having about 120 locomotives writes that a number of the enginemen wish to form a club to study the construction and operation of locomotives, but the men do not feel that they should each pay from \$18 to \$38 for lessons furnished by correspondence schools. They are now searching for a text book, a course of locomotive studies or some one who can prepare something of that kind, presumably a good deal cheaper. This letter suggests two points, at least. One is that the prospective members of this club put a low money value on what they expect to learn, as it is generally thought that the fees of the correspondence schools are quite reasonable, considering what some of them furnish in the way of instruction. We suppose most men who have spent four or five years and a few thousand dollars for a technical training will be of this opinion. The other point is, that of all the books written on the subject of locomotives, none is found suitable as a text book for enginemen. No doubt Mr. Forney and Mr. Sinclair will be much surprised to hear of this.

NEW PUBLICATIONS.

History of the Pennsylvania Railroad Company. With Plan of Organization, Portraits of Officials and Biographical Sketches. By William Bender Wilson. Two volumes, large octavo, 418 and 324 pages; illustrations and index. Philadelphia: Henry T. Coates & Co., 1899.

Mr. Wilson says in his preface: "Fortunate opportunities through life have largely aided me in storing up the data upon which the work is founded. Among these were my home environments. . . . Standing at my father's side in our home and at his office in Harrisburg and accompanying him on several tours of inspection of the public works, I early began to accumulate a fund of knowledge pertaining to the subject." This indicates at once the merits and the limitations of the two volumes in which Mr. Wilson has embodied his "accumulations." The main line and its various branches and subsidiary roads east of Pittsburgh and Erie are treated in considerable detail as to their location, history and management. The pages relate many events, important and unimportant in the growth of this great corporation so fully and so well as to be of interest even to readers who are already familiar with the main facts described. Among these may be mentioned the story of Lincoln's famous journey from Harrisburg to Washington and the account of the destruction of the great bridge at Columbia. But on the whole, there is a mass of details collected in these volumes of little present value, and one looks in vain for any discussion of the greater problems of railroading and transportation and for a judicious and appreciative account of any of the great engineering work, civil and mechanical, which has been carried on during the development of the property. Furthermore, the entire omission of the properties owned and controlled by the Pennsylvania Railroad Company which lie west of Pittsburgh makes the book fall short of giving anything like a complete understanding of the great system founded by J. Edgar Thompson and strengthened and consolidated by Thomas A. Scott and George B. Roberts.

The second volume is mostly biographical and gives sketches of many men who have been connected with the system, and with these are over 200 portraits. Obviously, this volume has a considerable interest to a few people, a small interest to a great many people and will be useful to the editors of newspapers. It is somewhat padded with accounts of the jubilee of the company held in Philadelphia in April, 1896, and with sketches of little interest except to the subjects themselves.

Both volumes are handsomely printed and profusely illustrated. It is interesting to note the great advance in photographic reproductions, as, for instance, in the comparison of the charming scenes on the Juniata River and the Conemaugh with the old wood cuts of the forties, such as those of York and of Erie. The portraits are generally good, but exception must be made to those of Samuel M. Felton, William B. Foster and George C. Franciscus. Surely something better might have been obtained.

On the whole this work is a memorial, valuable rather to the friends of the Company and of its officials than instructive to the general reader or of

assistance to the student of railroad problems; and it must not be for a moment confused with the great history now in preparation by officers of the company.

Snow on the Headlight. A Story of the Great Burlington Strike. By Cy Warman. Cloth, 12mo., 250 pages. New York: D. Appleton & Co. \$1.25.

In his preface Mr. Warman tells us that this story is fiction stuffed with facts. The fiction is, however, of the kind which might easily be fact, and the proportion of facts is large. It is a story of one of the most formidable and disastrous railroad strikes that ever occurred—a strike which cost the railroad company a great many millions and from which the company has not yet entirely recovered, and which ruined hundreds of fine workmen and brought untold misery upon their families. It would be a useful lesson to workmen of all grades and classes to take a leisurely trip over the Burlington and talk with the men from one end of the line to the other, and dig out the stories of the desolation which this strike brought about. The next best thing to taking such a trip is to read Mr. Warman's little book. He tells the story from the side of the engineer and fireman, and he has been both. Moreover, he tells it with spirit and fancy and pathos, and so contrives to make his facts and his moralizing acceptable. The story is full of the actual feeling and experience of the people, and it is full, too, of good sense; although we venture to say that ten years from now the author will not feel quite so strongly the obligation which he now feels of lecturing the managers of the corporations. Everybody who knows anything of the history of that strike and of the Burlington in those days will find a good many old acquaintances in these pages. Under the name of Mr. Stonaker he will discover the late H. B. Stone. Mr. Besler is imperfectly concealed under the name and character of Mr. Josler, the German General Superintendent, and Paul Morton masquerades in thin disguise as Mr. Paul.

TRADE CATALOGUES.

The Ferracute Machine Co. of Bridgeton, N. J., sends us "Catalogue 12," dated April 1, 1899, descriptive of presses, dies and other sheet metal tools. The machines shown, as well as most of those that are made at the Ferracute works, are of original design and carefully planned for strength, convenience and symmetry. These consist chiefly of presses and dies for shearing, cutting, punching, bending and similar uses, a few auxiliary tools, as spinning lathes and beading machines are also made by this company. A larger and more complete catalogue will be issued in a few months.

Air Compressors.—The Ingersoll-Sergeant Drill Co. has issued a new catalogue of air compressors, air receivers, etc. The tables and like information are much the same as in former catalogues, but illustrations have been added of some important plants and machines. A series of formulas and tables is added on the flow of air through pipes. The catalogue is an octavo pamphlet of 106 pages, handsomely illustrated and printed.

Electric Generators.—The Bullock Electric Manufacturing Company, of Cincinnati, O., sends us a new bulletin covering the special matter of "engine type" generators. These are built for direct connection to steam or gas engines or water wheels.

State Railroad Commissioners' Convention.

The eleventh annual convention of the National Association of State Railway and Warehouse Commissioners was held at Denver, Colorado, Aug. 10 and 11. Twenty-one States were represented by about 75 delegates. The Interstate Commerce Commission was represented by Messrs. Knapp, Clements, Adams and Moseley; Mr. Moseley was Secretary of the convention. The States represented were Arkansas, California, Georgia, Illinois, Iowa, Louisiana, Missouri, Minnesota, Nebraska, Michigan, New York, North Carolina, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia and Wisconsin.

President E. T. Jeffery, of the Denver & Rio Grande, having invited the delegates to make a three days' tour of the mountains over his road, the convention did not waste much time on its business. Many of the papers were submitted without reading to be printed in the proceedings, and nearly all the reports of standing committees were treated in like manner without discussion.

The principal topic discussed was a resolution offered by Allison Mayfield of Texas, as follows:

Resolved, That the Congress of the United States be and are hereby requested to enact a law declaring that hereafter the earnings received from all sources by railroads chartered and operated in pursuance of the authority of a State, and lying entirely within the limits of such State, shall be considered in the ascertainment of the reasonableness or unreasonableness of rates and charges on such railroads prescribed by the authority of such State in the exercise of its police powers.

Mr. Reagan of Texas spoke in favor of the resolu-

tion, holding that to restrict the State Commissions to local business originating entirely within the State and excluding earnings interstate business, in the matter of rate making, would inevitably be unjust. After a spirited debate the resolution was lost by a vote of 24 to 28. The vote was by delegates, each being allowed one vote. An effort to have a vote by States, each State having one vote, was unsuccessful.

Chairman Knapp delivered an address upon "Personal Influences in the Administration of Railway Laws," and Mr. Clements of the Commission spoke upon "The Rebate Abuse." Mr. Knapp referred to the comparative newness of the field of railroad regulation and set forth the exacting demands now made by the business world on the legislative powers of civilized countries. Public transportation is a government function, but for reasons of expediency it is delegated to private corporations. There is great opportunity for the abuse of this power and constant effort is needed to insure justice. "It is only natural that railroad managers should be disinclined to comply with our regulations. I conceive that the interest of the public can be best secured if public officials obtain the confidence of railroad officials. A vast amount of good can be accomplished if railroad commissioners confer with railroad officials upon questions at issue. Existing laws are experimental from the public standpoint, as well as from a railroad standpoint. If these laws fail it is a question whether the laws are poorly administered or whether legislation is at fault.

"Whatever tends to harmonize competing lines should be encouraged by suitable enactments and just legislation. The carrier is entitled to equal protection with the shipper. The necessity of the carrier is often the opportunity of which the shipper takes advantage. The selfishness of human nature is on both sides. The object of railroad legislation is to hold these opposing elements in stable equilibrium. So far as the law can apply remedies, these remedies should be available both to the railroads and the people."

Mr. Clements discussed the prevalent irregularities in the relations between railroads and their shippers. Railroads are sometimes found guilty of illegal practices, but they appeal to the higher Courts and continue their discriminations. In nine cases out of ten the suitor is exhausted by delay and his expenses are much more than he can ever recover. The shipper is not really protected unless the protection prevents the perpetrating of the wrong. Why should not the carriers be subjected to injunction instead of the employees? The government deals very harshly with the maker of moonshine whiskey; why should not similar treatment be meted out to carriers who wilfully and persistently defy the law? The representative of the people should not be scared by the howl about confiscation or the cry that railroad building will be abandoned if restrictive laws are passed.

Mr. Cicero J. Lindly, of the Illinois Commission, in his address as President, reviewed the difficulties encountered by State Commissions in the matter of export rates to the seaboard, when shippers appeal for an adjustment of local rates so as to force the railroads to readjust their export rates. Changes of tariffs are disastrous. Said he: "The stability of rates is of paramount importance, and in order to bring this about there is an absolute necessity for federal legislation empowering the Interstate Commerce Commission to fix a uniform schedule of rates and the further power of the enforcement of its decisions."

Regarding the encroachments of electric lines upon the business of steam railroads, he said: "Some steps must be taken by the legislative bodies in the States to control the construction of these lines. They should be under the same regulations as the steam roads. In Illinois we claim that any road securing a charter under the general railroad law, whether operated by steam or other power, is under our control. This question will be fully tested and decided before our next annual meeting, as far as Illinois is concerned."

Hon. Walter Clark, of Raleigh, North Carolina, being invited to address the Convention, said that it rests with the Commissions of States and of the nation to satisfy the public upon matters affecting their rights as against railroad discriminations; if these fail in their mission the people will try Government ownership. He advocated the passage of laws by Congress that will permit of the fixing of rates by the Interstate and State Commissions. Such a course is greatly desired in the South.

In the report of the Standing Committee on Classification of Expenses of Steam Railroads, it was recommended that construction companies file with the State Commission itemized reports of the expenses of building roads.

Mr. Ashley W. Cole, of New York, submitted a report upon the classification of construction and operating expenses of electric roads, which was a pamphlet of many pages.

Prof. H. C. Adams, Statistician of the Interstate Commission, gave a report upon statistics. He advocates a uniform compilation by the State Commissions of the statistics of the reports sent them by the railroads. It is not wise to tie down the State Commissions arbitrarily, but there should be a common acceptance of phrases and terms. The report re-

views the difficulty of classification of employees and the difficulty of securing the co-operation of the employees' unions.

Mr. W. F. LaFollette, of South Dakota, reported for the Committee on Uniform Statistics by a resolution urging the State Railroad Commissions and the Interstate Commission to send strong memorials to Congress for the passage of a law consolidating the three freight classifications now in use as recommended by the Interstate Commission.

Mr. I. B. Brown, of Pennsylvania, read a report of the Committee on Legislation reviewing the history of the work for many years back and the acts of the previous sessions of this Convention. Mr. Brown submitted a resolution in substance as follows:

Resolved, That this Convention recommends to Congress the passage of laws to suppress the transportation evils and abuses described in the various reports of the Interstate Commission, particularly in the tenth annual report; that any modification of existing laws intended to confer additional privileges upon carriers should be accompanied by ample safeguards to protect the public against the dangers of railway combinations.

This was adopted without debate.

Then followed an experience meeting, being reports of States upon the working of their respective Commissions. Some of these reports were written and quite long. Mr. Flory, of Missouri, discussed safety appliances, recounting the statistics showing the great magnitude of the passenger and freight traffic of this country at the present time, together with the record of injuries, fatal and otherwise, to passengers, employees and trespassers. Mr. Flory recommends the best possible signaling, surface cattle guards, guard rails on bridges, the elevation of overhead bridges which are too low, the blocking of frogs and switches, the use of continuous steam heat, of automatic brakes and couplers, Pintch gas and electric headlights. All railroad commissioners should use their influence to secure the passage of legislation, which ought to be as nearly uniform as possible throughout the country, requiring the adoption of safety appliances and, in general, looking to the prevention of all accidents.

The convention voted to meet May 10, 1900, in Milwaukee. Officers elected were: President, C. J. Lindly, of Illinois; Vice-Presidents, W. D. Evans, of South Carolina, and W. W. Ainsworth, of Iowa; Secretary, E. A. Moseley, Washington, D. C.; Assistant, M. S. Decker.

The pleasures of the Convention consisted of a carriage ride about the city, for the ladies, tendered by President Jeffery, and the railroad excursion before referred to. The delegates were taken in special cars to Manitou, Friday afternoon, where they were shown the scenic beauties of that noted resort, including a trip on the Cog-wheel railroad to the summit of Pike's Peak. On Saturday they went to Glenwood Springs through Royal Gorge and via Leadville and Tennessee Pass. A rest over Sunday was enjoyed at Hotel Colorado at Glenwood. Mr. C. M. Hobbs, Purchasing Agent of the D. & R. G., delivered his lecture with the stereopticon upon the scenic wonders of America, in the ballroom of the hotel. On Monday the party were taken over the narrow gage road to Grand Junction, returning through Black Canon, and over Marshall Pass, reaching Denver Monday evening. During this entire tour they were the guests of the railroad company, and many of the officers of the road accompanied the party to expatiate upon the scenic and traffic merits of the State.

Chairman Knapp on Government Regulation of Railroads.

At a dinner of the National Association of Merchants and Travelers in Chicago last week, Hon. Martin A. Knapp, Chairman of the Interstate Commerce Commission, made an address on the present aspects of the railroad problem. There are three methods of escape from the present intolerable situation; government ownership, which no one approves; consolidation, which is so large a problem that no one dares undertake it; and third, to allow the railroads, while remaining separate, to freely and lawfully contract with each other for the movement of competitive traffic. With this preface, Mr. Knapp said, in part:

"There is a radical difference, as it seems to me, between those combinations which take the offensive name of 'trusts' and a federation of public carriers. This difference may be stated in a single paragraph. In commercial transactions concerning actual property, the products of labor and skill, we do not want—under the present conditions at least—uniformity of price. The producer should be free to sell for all he can get, the purchaser equally free to buy as cheap as he can. But as respects public transportation, which is not property at all, but a service, we do want uniform charges—under like conditions—without preference or exception to any person. Properly considered, the tolls paid to the carrier are in the nature of a tax, and the relations between railroads and their patrons are not contract relations, save in a limited sense and for special purposes. Therefore, whatever tends to stability and uniformity of charge by railway carriers is on the whole to be desired and promoted. Practically, therefore, the choice lies between competition on the one hand, with the inevitable outcome of discriminations which favor the few at the expense of the many, or like charges for like service, which can be realized only by allowing co-operative action by rival rail-

roads. The facts of experience and familiar knowledge demonstrate the error and inconsistency of a legislative policy which makes rate competition compulsory and at the same time condemns as criminal misdemeanors the acts and inducements by which in other spheres of activity competition is mainly effected. For this reason I advocate the legal sanction of combination by rival carriers in the conveyance of passengers and property between competitive points. This is the one sensible and practicable plan, adapted to present conditions and suited to existing requirements. Such a policy would promote and invite the conduct of public transportation upon principles consonant with the nature of the service and beneficial to the people and the railroads alike.

"Should there be other protection against rebates and secret concessions? Most assuredly. Legalized pooling would promote public welfare, because it would give railways the opportunity now lacking to conduct their business by just and honest methods, and range their interest and influence on the side of law. But this safeguard should be aided by every legal sanction that can be devised. By penalties and forfeitures, by the rigorous enforcement of criminal statutes, by an aroused and dominant public conscience, I would make every sort of rate-cutting, whether by railroad agent or ticket scalper, as disreputable as chicken stealing and as dangerous as highway robbery.

"The obvious weakness of the law as it now stands is the want of authority on the part of the commission to require changes in the standard of charges even when the standard is found upon investigation to be unjust or unreasonable. The correction of this defect is, in my judgment, the most important and needful legislation in connection with legalized pooling."

Richmond Locomotives for Sweden.

Among other locomotives which the Richmond Locomotive Works have recently built for Sweden are 10 compound 10-wheel engines. These have been built strictly in accordance with American practice. The most noticeable modification is putting the reverse lever and all of the operating handles and levers on the left-hand side of the cab, and the engines have no bell or cow-catcher. Otherwise they are precisely what one might expect to see anywhere west of the Allegheny Mountains, and not unfrequently east of them. They are built for fast passenger service in the southern part of Sweden and are for a gage of 4 ft. 8½ in. Certain of the most important weights and dimensions follow:

Weight on drivers 87,000 lbs.
in working order 122,000 lbs.

Cylinders.

Diameter H.P. 20 in. L.P. 31 in.
Piston stroke 24 in.
" packing Snap rings
" rod diam. 3 in.
" material Steel
" packing U. S. metallic
Steam ports H.P. 1½ in. x 20 in. L.P. 2½ in. x 21 in.
Exhaust port H.P. 3 in. x 20 in. L.P. 3 in. x 21 in.
Bridge width H.P. 1½ in. L.P. 1½ in.

Slide Valves.

Style H.P. Richardson. L.P. double ported
Greatest travel H.P. 5½ in. L.P. 5.96 in.
Lap, outside H.P. 1½ in. L.P. 1 in.
" inside H.P. negative ¾ in. L.P. negative ¾ in.
Lead in full gear H.P. ¾ in. L.P. ¾ in.
Valve stem packing U. S. Metallic

Wheels.

Diam. 62 in.
Centers Cast iron
Boxes Cast iron
Axle journal Steel, 7½ in. x 9½ in.
Crank pin, main Steel, 5½ in. diam. x 6 in.
" side rods Steel, 4 in. diam. x 4 in.
Engine truck, style Center bearing, swiveling
" wheels diam. 28 in.
" axle McKee Fuller steel tired
" journals 5½ in. x 10 in.

Boiler.

Extended wagon top, radial stayed.
Working pressure 180 lbs.
Outside diam. 1st course 57 in.
Thickness of plates in barrel ¾ in. and ¾ in.
" roof and sides ¾ in.
Seams, circumferential Double riveted
" horizontal, butt Quadruple riveted
Firebox, length 79½ in.
" width 34½ in.
" depth front, 65½ in.; back, 54½ in.
" material Copper
" plates sides, ½ in.; back, ½ in.
" crown, ½ in.; tube, ¾ in.
" water space, front, 4 in.; side, 3 in.; back, 3 in.
" crown stays 1 in. hollow iron
" stay bolts 1 in. hollow copper
Tubes, material Charcoal iron
" number 229
" diam. 2 in.
" thickness No. 12 B. W. G.
Heating surface, tubes 1,538.7 sq. ft.
" firebox 111.8 sq. ft.
" total 1,650.5 sq. ft.
Grate, style Rocking, cast iron
" area 10.1 sq. ft.
Exhaust pipe, style Single
" nozzle 4½ in. and 5 in.
Smokestack, inside diam. 14 in. at bottom; 16 in. at top
Feed water supplied by Two No. 9 Monitor injectors

Tender.

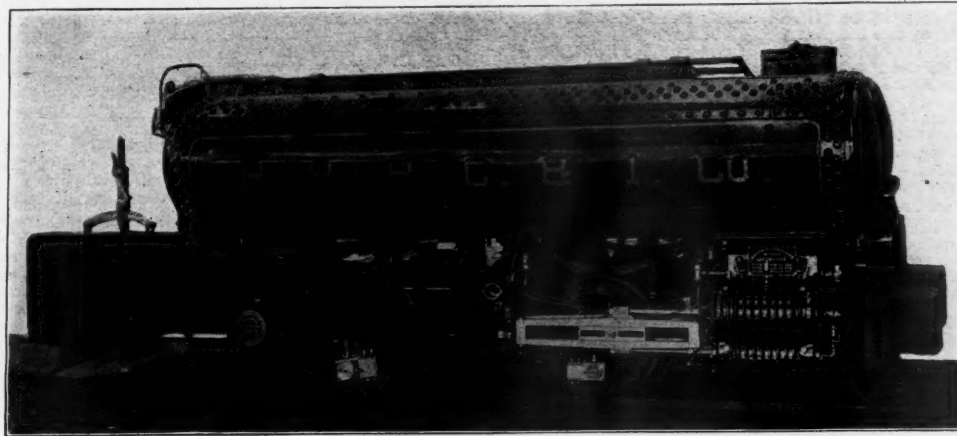
Weight, empty 24,000 lbs.
Frame Steel
Wheels, number 6
" diameter 36 in.
Journals 5 in. x 9 in.
Wheel base 11 ft. 6 in.
Tank capacity, water 3,300 gals.
" coal 7 tons

Special Equipment.

Copper firebox.
Copper water space stays.
McKee Fuller steel tired engine truck and tender wheels.
French springs.
United States metallic packing for piston rods and valve stems.
Latrobe tires.
Monitor injectors.
Coal safety valves.
Star steam gage.
Westinghouse steam brakes.
Magnesia boiler covering.
Nathan lubricator.
Screw coupling and buffers.
Snow plows.

Vauclain Compound Compressed Air Locomotive.

The accompanying engraving shows the last compressed air mining locomotive built by the Baldwin Locomotive Works for the Philadelphia & Reading Coal & Iron Co. This engine weighs 22,000 lbs., and is capable of hauling 32 cars weighing one ton each up a 1½ per cent. grade. The gage is 3 ft. 8 in. and the outside dimensions are: Height, 6 ft. 6 in.; width, 6 ft. 4 in., and length, 14 ft.; the wheel base is 4 ft. There are four driving wheels, 24 in. in diameter, and the journals of the driving axles are 4x6 in. The cylinders are 5 and 8 in. by 12 in., arranged according to the Vauclain system of compounding, the valves



Compressed Air Locomotive for the Philadelphia & Reading Coal and Iron Co.

being of the piston type. There are three air tanks, two being 31 in. in diameter and 13 ft. 7½ in. and 11 ft. 4½ in. long, respectively, while one is 8 in. in diameter by 7 ft. 4 in. long. The storage pressure is 600 lbs. per sq. in., and by means of a reducing valve the working pressure is brought down to 200 lbs.

TECHNICAL.

Manufacturing and Business.

The Sargent Co., Chicago, will build a new foundry and steel castings plant at Chicago Heights, at a cost of about \$175,000. Four buildings are to be put up, each 100 x 500 ft. Sixteen acres of land have been secured for the new plant, which will employ about 700 men. When completed, the present plant at 59th and Wallace streets will be torn down, and the land divided into lots and sold for building purposes.

Frank B. Stone, Fisher Building, Chicago, has contracted to furnish nearly two million feet of lumber for a new grain elevator at South Chicago. The delivery is to commence at once and be completed by September 15.

Thomas H. Carlin has sold his interest in the firm of Thomas Carlin's Sons, of Allegheny, Pa., to his brothers, Wm. J. Carlin and J. H. Carlin. Mr. Carlin sailed for Europe on the 16th to look up methods and machinery relative to the clay, coal, cement and railroad contracting industries.

Mr. Gustave R. Tuska, Assoc. Mem. A. S. C. E., has removed his offices from No. 29 Broadway to No. 62 William St., New York City, where he will continue in practice as Consulting Engineer.

Robert E. Libby, formerly the representative of the N. Y. Air Brake Co. in the South, died in the latter part of July. Mr. Libby was identified with the N. Y. Air Brake Co. for a long time and upon him becoming totally blind the company offered him a pension.

W. H. S. Wright has been appointed Sales Agent of the Illinois Steel Co., to take effect August 1, 1899, with offices at No. 401 Pioneer Press Building, St. Paul, Minn., vice F. B. Howell, resigned.

Iron and Steel.

The Republic Iron & Steel Co., which was recently incorporated in New Jersey with \$55,000,000 capital, was incorporated last week in Illinois, with a capitalization of \$1,750,000.

Government Work.

Bids are wanted until Sept. 5 by Major W. H. Heuer, Corps of Engineers, U. S. A., San Francisco, Cal., for dredging in Petaluma Creek, Cal.

Sealed proposals for building the riprap breakwater at Larchmont Harbor, Long Island Sound, will be received at the U. S. Engineer Office, Army Building, New York City, until Sept. 12. W. H. H. Benyard, Lieut. Col. of Engineers.

Sealed proposals for an hydraulic dredge will be received at the U. S. Engineer Office, 57 Park St., Grand Rapids, Mich., until Aug. 28. Address Chester Harding, Captain of Engineers.

The British Westinghouse Company.

At an extraordinary meeting of the British Westinghouse Company, held recently, it was decided to take over the Westinghouse Works in Manchester, hitherto a separate concern. The capital of the company has been increased by £250,000.

The Tunnel Under the Spree at Berlin.

This tunnel is completed and will be put into use in connection with the street railroad from Schlesischer Bahnhof at Berlin to Treptow. After the completion of the first third of the tunnel, the building was suspended to make an agreement with the street railroad which was to use the tunnel for crossing the Spree. In September, 1897, the work was resumed and since that time has proceeded without interruption. The building of that part of the tunnel lying under the Spree was finished in January, 1898. In this work the daily progress was 1½ meters. There was particular difficulty in building the section 80 meters long under the Stralan Bank where

there was a sharp curve. For the construction of this part of the work an open trench was chosen, enclosed with side walls and a bottom of cement concrete. The width of section varied from 6.5 to 11 meters and the mud required to be excavated to a depth varying from 4.5 to 19 meters. This part of the work was carried through without interruption. In the deeper section, lying near the Spree, the section was from 9.5 to 11 meters wide and the pressure of the wet mud was too great to carry on the work in this manner; it was therefore divided into three portions of about 10 meters long, each of which was put under air pressure.

American Material for China and Siberia.

The steamship Puritan cleared from Philadelphia, last week, for China and Siberia with a large cargo of railroad material, her destination being Vladivostok and Neu Chwang. The cargo contains 40 Baldwin locomotives and tenders and 18 steel bridges for the Chinese Eastern Railroad, besides some miscellaneous cargo. She will go by way of the Suez Canal to Vladivostok, afterward returning to Neu Chwang. The British steamship Up-lands is now loading at Philadelphia with an almost similar cargo for Russian Black Sea ports.

A Consolidation of Tool Companies.

The Niles-Bement-Pond Co. has been incorporated in New Jersey with an authorized capital stock of \$8,000,000. It is a combination of the Niles Tool Works Co. of Hamilton, O., the Pond Machine Tool Co. of Plainfield, N. J., Bement, Miles & Co. of Philadelphia and the Philadelphia Engineering Works, of Philadelphia.

American Bridges for Japan.

The Pencoyd Iron Works (The A. & P. Roberts Co.) of Philadelphia, Pa., have received an order to supply the Imperial Government Railways of Japan with about 6,500 tons of bridge material. The contract includes 45 double track spans of 100 ft. each and 11 single track spans of 200 ft. each.

New York Navy Yard Bids Rejected.

The Navy Department, Aug. 14, rejected the bids made Saturday for the New York Navy Yard engineering shops which will replace those destroyed by fire, as all the bids exceed the appropriation by about \$200,000. The lowest was Post & McCord, of Brooklyn, \$519,326, but the limit of appropriation is \$325,000. New specifications will probably be made and new bids called for. There were three bids, Augustus Smith of New York, \$520,174; the United Company of New York, \$523,300, and Post & McCord, \$519,326.

A Very Big Locomotive.

The Brooks Locomotive Works are just completing the 12-wheel engine for the Illinois Central Railroad which we described briefly last March. The cylinders are 23 in. diameter and 30 in. stroke; the drivers are 57 in. diameter and the total weight of the engine (without the tender) is 218,000 lbs. This is one of the biggest locomotives ever built, but not the biggest.

Chicago & Milwaukee Electric Railway.

The Chicago & Milwaukee Electric Railway, between Evanston and Waukegan, Ill., was put in full operation, Thursday, August 10. The completion of the road has been delayed several months by difficulty in getting the right to build through Kenilworth. This road practically parallels the Chicago & Northwestern, and is 28 miles long, connecting with the Evans-

ton Branch of the Chicago, Milwaukee & St. Paul at Evanston. From that point to Highland Park there are double tracks. The following towns north of Evanston are on the line of this road: Wilmette, Kenilworth, Winnetka, Lakeside, Glencoe, Ravinia, Highland Park, Highwood, Ft. Sheridan, Lake Forest, Lake Bluff, North Chicago and Waukegan. The present equipment consists of 30 double truck motor cars, 38 ft. long, equipped with 100 h.p. motors and Christensen air brakes, and 10 trailer cars. It is intended, for the present, to run cars every 15 minutes during the day.

Pig Iron Production in July.

Figures published in the Iron Age show an increase in the production of pig iron during July. On Aug. 1 there were 244 furnaces in blast, with a weekly capacity of 267,672 gross tons, as against 237 furnaces in blast July 1, with a weekly capacity of 263,363 gross tons; and as against 187 furnaces in blast Aug. 1, 1898, with a weekly capacity of 206,777 gross tons. Stocks sold and unsold on Aug. 1 amounted to 150,268 tons, against 169,335 tons July 1.

A Heavy Pull.

In a recent test of a ten-wheel Vauclain compound freight locomotive on the Chicago, Milwaukee & St. Paul, a train weighing 1,800 tons was hauled up a long 35-ft. grade without stalling. The weight of the locomotive on the driving wheels was 132,000 lbs.

Another Tie Treating Plant.

The Burlington & Missouri River Railroad in Nebraska is now building a plant at Edgemont, S. D., for treating pine cross ties cut in the Black Hills. The capacity of the works will be about 50,000 ties a month, and it is being arranged so that either the zinc-chloride or Burnett process, or the zinc-tannin or Wellhouse process can be used, as desired. The plans for this tie treating plant were made by Rowe & Rowe, Consulting Engineers, Chicago, who are also supervising the erection.

The Deep Waterways Surveys.

The Engineers of the Deep Waterways Commission have finished the preliminary surveys for a canal connecting the Great Lakes with the Hudson River, and a report will be made to Congress at the next session.

THE SCRAP HEAP.

Notes.

The Mexican Central is to build a hospital at Aguas Calientes to cost \$130,000. The main building will be 209 ft. long and 85 ft. wide.

It is reported in Boston that the trains on the Providence Division of the New York, New Haven & Hartford will begin to run to and from the South Terminal Station on Sunday, Sept. 3.

The Metropolitan Street Railway Co. of New York City is allowing three days' vacation, without loss of pay, to each employee who continued at work during the strike of July 19 and 20. Each man also received double pay for those days.

The Railroad Commissioners of Tennessee have completed their biennial valuation of the railroad property of the State for taxation. The total is \$54,880,718. This is about \$5,000,000 more than the valuation of last year, but it is nearly \$11,000,000 less than the valuation of two years ago, concerning which the railroads made a protest which is still in litigation before the Courts.

An officer of the Department of Agriculture at Washington has made an inspection of the territory damaged by the June flood in Texas and reports the number of acres submerged as 1,380,000, of which 339,000 was planted with cotton and 164,000 with other crops. The damage to growing crops was \$6,570,000; to farm property and live stock, \$844,000; to the land itself, \$200,000, which, however, is partly offset by alluvial deposits which will increase future fertility.

General Manager Underwood of the Baltimore & Ohio has ordered the platforms to be taken off from all of the company's baggage, mail and express cars. This will increase the element of safety and reduce the weight of the cars; and it will also serve to convince the tramps that on the B. & O. the "blind baggage" is really a hard place to travel in. Mr. Underwood has also ordered the numbers to be obliterated from the sides of the locomotive tenders, so that those of the same style will be interchangeable.

The New York Central & Hudson River road has under consideration plans for a steel tank grain elevator, to be erected at the terminal of the West Shore road at Weehawken, N. J. The elevator proper will consist of 756 steel bins, 65 ft. high, enclosed within brick walls. The building is to be 106 ft. x 610 ft. and 189 ft. high to the top of the cupola. The building will stand on a pier 130 ft. wide and 1,200 ft. long, so that vessels can be loaded from both sides. The distinctive feature of the plan is the arrangement of the steel bins, the idea being to utilize all possible space. The cylindrical steel tanks or bins will have hopper bottoms and will be mounted on steel columns 24 ft. above the top of the dock. The interstices between the cylindrical bins will be utilized for grain storage as well as the bins themselves.

From Lake Michigan to the Gulf.

Government engineers are now making preliminary surveys to determine the cost of building a navigable waterway, 160 ft. wide and from 8 to 10 ft. deep from the Illinois River to Lake Michigan. The route proposed is to make use of the Drainage Canal, portions of the Illinois and Michigan Canal near Joliet, and improve the upper portion of the Illinois River. The last session of Congress appropriated \$30,000 to cover the cost of these surveys.

The Baltimore & Ohio Creates the Office of Industrial Agent.

The Baltimore & Ohio has taken a new step in the appointment of W. W. Wood, with headquarters at Baltimore, as Industrial Agent. Mr. Wood's duties will be to advise manufacturers and others as to desirable locations for their plants, and to give information in detail as to the peculiar advantages of territory adjacent to the company's lines. It is believed that this will do much to develop the resources of the territory.

The New Taylor St., Chicago, Lift Bridge.

The Pennsylvania Steel Co. is building a lift bridge at Taylor St., Chicago, to carry the Chicago Terminal Transfer RR. across the Chicago River, for which the contract was awarded to them in May. The structure is a double track Scherzer rolling lift bridge, 29 ft. center to center of trusses, and 275 ft. center to center of end bearings, which, for a square span, gives a clear water way of over 250 ft. This is a greater clear opening than is obtained in any draw bridges or other movable bridges. The live load capacity is 5,000 lbs. per lineal foot plus a concentrated load of 50,000 lbs. All members are riveted and joints field riveted. The bridge consists of two independent cantilever arms, which are effectively locked at the center, when the bridge is closed, by the engagement of the lower chord sections. Each anchor arm consists of a counterbalance which balances the dead load of the structure and anchorage in the masonry which balances the live load uplift. The bridge in opening is turned on a segmental girder through an angle of 80 deg. and is operated primarily by two 50 h. p. motors at each end of structure. Indicators will be provided at each end to show the operator the exact position of both arms. In the masonry will be provided well holes of sufficient size to clear the counterbalance boxes when the structure is in an upright position.

The work of moving the old double track structure to the temporary center pier, 53 ft. north of the new bridge, was begun Aug. 12. It is not practicable to use scows, so the old bridge, which weighs about 600 tons, will be moved on skids, two steam pile-driving engines in the river and two locomotives on the banks furnishing the power.

New Railroad in Corea.

A charter has been granted to the Korean Internal Railway Service Company for building a railroad between Chemulpo and Uiju. Work is to be begun within five years and finished in 15 years, and the road is not to be transferred to foreigners.

"Skeleton Construction."

On Wednesday, the 9th, a tablet was unveiled on the Tower Building in lower Broadway, New York City, designed to commemorate the beginning of what has come to be known as "skeleton construction" of buildings. This tablet was placed, by the Society of Architectural Iron Manufacturers on that building, which is said to be the earliest example of skeleton construction in which the entire weight of the floors and walls is borne and transmitted to the foundation by a framework of metallic posts and beams. This building was put up in 1888 and '89. The tablet says that the system was originated and designed by Mr. Bradford L. Gilbert.

Fast Runs With Heavy Trains.

In our issue of July 28, page 544, we gave notes of some very fast runs over the Vandalia Line near Indianapolis. This report is now supplemented by an account of fast runs with considerably heavier trains, accompanied by a profile of the road. Train No. 20 eastbound, on July 19, drawn by engine No. 16, one of the same class before described (Schenectady eight-wheeler) was run from Clayton to the transfer station west of Indianapolis, 18 miles, in 18 minutes, and the number of cars was 14; two postal cars, one combination, eight day-cars, one diner and two sleepers, carrying altogether 460 passengers. On the next day with 13 cars, the run was made in 16 minutes (67 miles an hour), the run from Coatesville, 26 miles, being made in 26 minutes. The profile shows, from Clayton to Transfer, a total fall of about 150 ft., or say 8 ft. per mile; but the line is undulating, with several ascending grades. One of these is about one-half mile long, another three-fourths and another one mile; and east of Oak Plain there is a rise of over a mile at about 26 ft. per mile, and again, after a short descent there is an ascent of 2 1/4 miles at about 20 ft. per mile. The engine drawing this train has 20x26 in. cylinders; drivers, 78 in.; weight on drivers, 85,800 lbs.; heating surface, 2,241 sq. ft.

Increased Safety in Travel.

The hopper bottom steel cars are said to be popular with a large class of travelers in the West—the hoboes. One of them says that the space above the frame and beneath the slanting floor is a good refuge from the weather, and the air-brake cylinder makes a good pillow. If two or three of the all-steel cars are in line he can sleep secure and fear no harm in case of a collision.

A Proposed Steamship Line to New Caledonia.

The following, dated Nouméa, June 24, has been received by the bureau of Foreign Commerce, Department of State, from Commercial Agent Paul Eugene Wolff: At a recent meeting of the provincial council of New Caledonia the question of granting a subsidy for steamers to run at regular intervals between Tahiti and Tonkin, via New Zealand and New Caledonia, was discussed. Propositions from a French and a New Zealand company were considered. United States trade would be promoted by steamship service between San Francisco and Tonkin, via Honolulu, Tahiti, New Caledonia, and the Philippine Islands. The subsidy asked for by the steamship company of New Zealand from the New Caledonian Council is 250,000 francs (\$48,250). It is probable that at least 150,000 francs (\$28,950) would be granted by Tahiti, and 500,000 francs (\$96,500) by the government of Tonkin. Four steamers of 2,000 tons each, two of which

could be furnished by a firm of Nouméa, would be sufficient for the service.

Agent Wolff also reported: A Mr. Bernheim, owner of mining property in the northwest of the colony, recently completed a narrow-gauge railroad 40 kilometers (24.85 miles) in length. The rails and rolling stock were imported from France. Two other lines are now building, one of 40 kilometers, on the east side of the island, at Kouaoua, and one of 30 kilometers (18.6 miles), close to Bourail, a small town north of Nouméa. A line of 150 kilometers (93 miles), to be built by the local government, will probably be begun in February next, the contract for which has not yet been awarded. A fifth line, in the extreme north, is in contemplation.

Bridges on the B. & O.

Of the 53 new steel bridges ordered last January by the Baltimore & Ohio RR. for improving the lines west of the Ohio River, about 40 are now in place. Many of the single-track structures which were removed are comparatively new. The old iron is being sold or used as the occasion demands. Some of it is being used for water tanks, some for overhead wagon bridges, and some has been sold to County Commissioners for road bridges and other purposes. The Youngstown Bridge Co., the Pencoyd Bridge Works and the Edge Moor Bridge Co. are putting in these bridges, and expect to have the work completed by the middle of September.

Japan Railroad Notes.

It is expected that the Kibi Railroad will be opened for traffic from Takamatsu to Shin-osayama, 26 miles, some time this month.

The Kishiu Railway has been granted a provisional charter for a branch line from Ougagama station to Muroki, Kurate district, by way of Ninobu and Yashiro.

The section of the Kan-yetsu Railway between Koriyama and Wakamatsu, about 40 miles, was opened for traffic July 15. The road when finished will extend from Koriyama, in Fukushima Prefecture, north and northeast to Sakata, in Akita Ken, 108 miles, passing through Wakamatsu and Shibata, Aomori Ken.

Some time ago we referred to the building at Osaka of a new car building works. The plant, known as the Kisha Seizo Goshi Kaisha (Railway Rolling Stock Factory), was formally opened last month at Nishi-ku, Osaka. The company has a capital of \$450,000, and Viscount Katsu Inouye is President, and Ki Hiraoka, Vice-President.

A charter permitting the building of an electric road between Osaka and Kobe, two large and important cities, has been granted to the Han-Shin Electric Tramway Co., until recently known as the Settsu Electric Tramway Co. It is expected that Mr. Misaki, Chief Engineer of the road, will visit America to look into our methods of building and working electric railroads.

The Kaibara-Fukuchiyama section of the Hankaku Railway was formally opened July 15.

In our issue of May 20, 1898, we printed an article on Electric Railroad Building in Japan in which we stated that no less than 50 different companies had been formed to build street railroads in Tokyo, to be worked by almost as many different motive powers, and that these had been merged into two companies, one, the Tokio Denki Tetsudo Kaisha (Tokio Electric Railway Co.) to control all lines in the eastern half of the city and the other, the Tokio Densha Tetsudo Kaisha (Tokio Electric Car Railway Co.) to work all lines in the western part of the city. Since the article appeared a third company, known as the Compressed Air Co., has been formed. On July 18 and 19 meetings were held by representatives of the three companies when it was decided to consolidate into one company, with a capital of \$7,500,000.

Track laying between Asahigawa and Biyel, 14 miles, on the Tokachi line of the Imperial Government Railways has been finished.

A New Railroad in Venezuela.

The Minister of Public Works of Venezuela has given a concession to Luis Munoz Tebar and associates for a new railroad to be known as the Puerto Cabello & San Felipe. The line is to run from Puerto Cabello, on the northern coast, west to San Felipe, 83 km. (51.6 miles), and thence southwest via Yaritagua (51 km.), Araure (63 km.), Ospino (49 km.), Guanare (50 km.), to Barinas, in all 365 km. (227 miles) from Puerto Cabello. The road may further be extended in time to the town of San Cristobal, Las Andes, to which point will soon be extended the Encantrados RR. Under the terms of the concession, a period of 10 months for beginning construction, is given from the date when the contract shall be approved by the National Congress, and a period of two years additional for building the first section from Puerto Cabello to San Felipe. An additional two years is given for the second section from San Felipe to Yaritagua. By the terms of the concession, building may be begun from a point on the Puerto Cabello & Valencia, a few miles from Puerto Cabello. The Government permits the introduction, free of taxes, of the materials, tools, implements, etc., needed for building and maintenance; the cutting of wood need in the public forests; also grants a strip of land of 15 meters on each side of the track, and areas of 25 sq. km. each about stations. Hotchiss & Willcox of 50 Broadway, New York, who own extensive mining property in Venezuela, control the concession. The intention is to begin building as soon as arrangements can be completed.

Dry Dock at Bay City, Mich.

Plans are being prepared for a new dry dock at Bay City, Mich., for James Davidson. This dock will be 400 ft. long and the conditions are such that it can be easily lengthened whenever desired. The dock will be wholly of timber, supported on piling, and will be a great addition to the Davidson plant. Ritchie & Ruple, of Cleveland, O., civil engineers, are preparing the plans, and will superintend the construction.

LOCOMOTIVE BUILDING.

The Chicago & Western Indiana is considering buying locomotives.

The Atchison, Topeka & Santa Fe is figuring on placing more orders for locomotives.

The Brooks Locomotive Works are building one locomotive for the North Pacific Coast.

It is reported that the Burlington, Cedar Rapids & Northern will order some locomotives.

The St. Paul & Duluth is reported in the market for locomotives. We have no official information.

The Schenectady Locomotive Works have an order to build one engine for the Arizona & Southeastern.

The order for locomotives given by the Erie to the Rogers Locomotive Co., and referred to in our last issue, has been increased to 30.

The Schenectady Locomotive Works have an order to build for the Maryland Steel Co. two saddle tank locomotives, with 14 in. x 24 in. cylinders.

The Rhode Island Locomotive Works are building for the Erie five extended wagon-top locomotive boilers and 16 boilers with Wootton fireboxes.

The Government of Russia has asked American builders to bid on 80 locomotives for the Chinese Eastern Railroad. The specifications call for 10-wheel compound engines with 20 in. and 30 in. x 30 in. cylinders and 72 in. driving wheels.

The Cleveland, Cincinnati, Chicago & St. Louis has ordered from the Rhode Island Locomotive Works four consolidation locomotives similar to the one illustrated in the Railroad Gazette of April 28, 1899, page 296. They will have 22-in. x 30-in. cylinders; radial stay extended wagon-top type of boilers, 72 in. in diam.; fireboxes, 9 ft. 11 in. long and 3 ft. 5 in. wide; driving wheels of cast steel, 56 in. in diam.; and a tank capacity for 6,000 gals. of water. The engines will weigh in working order about 190,000 lbs., and have Fox pressed steel trucks.

The Kansas City, Pittsburgh & Gulf has ordered from the Baldwin Locomotive Works two eight-wheel passenger engines, with 17-in. x 24-in. cylinders and 62-in. driving wheels; to weigh 87,000 lbs., with 56,000 lbs. on the driving wheels, and with a tender capacity for 3,500 gals. of water; and two 10-wheel freight engines, with 20-in. x 26-in. cylinders and 54-in. driving wheels; weight 141,400 lbs., of which 112,500 lbs. will be on the driving wheels; tender capacity, 4,000 gals. of water. All the engines will have Metropolitan injectors, Cloud tender trucks, Ashcroft gages and pop valves, Westinghouse brakes and Monarch brake beams.

CAR BUILDING.

The Chicago Great Western is in the market for 100 coal cars.

The Kansas City, Fort Scott & Memphis is in the market for from 150 to 200 box cars.

The Mexican Central has placed an order with the Illinois Car & Equipment Co. for 100 flat cars.

The Seaboard Air Line has placed an order for freight cars to be built at its shops at Americus, Ga.

The Pennsylvania has placed an order with the Pressed Steel Car Co. for 1,000 steel cars of 100,000 lbs. capacity.

W. J. Rainey, of Cleveland, O., has ordered from the Southern Car & Foundry Co. 200 coke cars of 50,000 lbs. capacity.

The Western New York & Pennsylvania has ordered 150 steel cars of 100,000 lbs. capacity from the Pressed Steel Car Co.

The National Rolling Stock Co. has ordered from the American Car & Foundry Co. 500 freight cars, to be built at the Madison Works.

The Bayfield Harbor & Great Western has ordered from the American Car & Foundry Co. 30 freight cars. They will be built at St. Louis.

The Continental Fruit Express has ordered from the American Car & Foundry Co., to be built at the works of the Wells & French Co., 53 fruit cars.

The Pressed Steel Car Co. has received an order to build 150 steel cars for the Buffalo, Rochester & Pittsburgh. They will be of 100,000 lbs. capacity.

The Terre Haute & Indianapolis (Vandalia Line) will ask for bids for building 100 freight cars, 50 to be coal cars of 80,000 lbs. capacity and 50 furniture cars.

The Erie has increased the order for steel cars given to the Pressed Steel Car Co., and referred to last week, from 1,000 to 2,000. The cars will be of 100,000 lbs. capacity.

The Asano Petroleum Co. of Japan has asked bids from American car builders on 50 tank cars. The order will probably be placed through a New York commission firm.

In January of this year the Great Northern was said to be figuring on buying 50 passenger cars. It is now reported that the road intends placing an order for 35. We have no official information.

The Atlanta & West Point is having built at the works of Pullman's Palace Car Co. two first class coaches. They will be 60 ft. long and equipped with Hale & Kilburn seats, Pintsch light, Westinghouse air brakes, Coffin process toughened steel axles, French springs, National hollow brake beams and Ajax metal journal brasses.

The United Railways & Electric Co. of Baltimore, has recently ordered from the Brownell Car Co. of St. Louis, 55 convertible car bodies. They will be fitted with maximum traction trucks.

BRIDGE BUILDING.

BILOXI, MISS.—The City Council has awarded the contract to the Missouri Valley Bridge Co. for bridging Back Bay, at \$11,465. (May 26, p. 377.)

BURLINGTON, VT.—The following are the bids received July 31 by N. K. Brown, Chairman of the Street Commissioners, for an iron or steel bridge of two spans, one of 144 ft. long and the other of 148 ft. long (July 28, p. 544), of following widths: (1) standard bridge, 16 ft. wide; (2) same, 18 ft. wide; (3) 20-ton bridge, 16 ft. wide; (4) same, 18 ft. wide; Pittsburgh Bridge Co., (1) \$8,050, (2) \$8,980, (3) \$9,960, (4) \$10,950; Berlin Iron Bridge Co. (1) \$8,175, (2) \$9,300, (3) \$10,305, (4) \$11,400; Dean-Westbrook Bridge Co., N. Y. City, (1) \$9,035, (2) \$9,975, (3) \$11,040, (4) \$11,995; Boston Bridge Works, (1) \$8,400, (2) \$9,238, (3) \$10,500, (4) \$11,370; Mace Moulton, Springfield, Mass., (1)

\$8,270, (2) \$9,437, (3) \$10,325, (4) \$11,325; King Bridge Co., (1) \$8,460, (2) \$9,130, (3) \$10,600, (4) \$11,275; J. E. Buddington, New Haven, Ct., (3) \$11,250, (4) \$13,000; Groton Bridge Co., (1) \$8,360, (2) \$9,275, (3) \$11,350, (4) \$12,050; Vermont Construction Co., St. Albans, Vt., (1) \$8,415, (2) \$9,650, (3) \$10,540, (4) \$11,300; Baltimore Structural Co., (1) \$8,106, (2) \$9,046, (3) \$10,212, (4) \$11,142; Toledo Bridge Co., (1) \$8,375, (2) \$9,400, (3) \$10,500, (4) \$11,490; Canton Bridge Co., (1) \$8,800, (2) \$9,638, (3) \$10,990, (4) \$12,100; F. E. Long Co., N. Y. City, (1) \$8,399, (2) \$9,695, (3) \$11,500, (4) \$12,300; Youngstown Bridge Co., (1) \$8,360, (2) \$9,280, (3) \$11,250, (4) \$13,000; Variety Iron Works, (1) \$8,299, (2) \$9,450, (3) \$10,370, (4) \$11,800; Wrought Iron Bridge Co., (1) \$8,300, (2) \$9,400, (3) \$11,400, (4) \$12,500.

BURWELL, NEB.—The Garfield County Commissioners recently let a contract for a steel bridge across the Loup River, a mile west of Burwell. This is the first steel bridge, reports state, to be built in this county.

CALVERT, TEX.—Reports state that a subscription has been started to build a bridge across the Brazos River. Wm. McIntosh and W. S. Allen are on a committee to select a suitable location.

CHAMBERSBURG, PA.—Viewers have recommended a county bridge in Southampton Township.

CHICAGO, ILL.—Major W. L. Marshall, Corps of Engineers, U. S. A., will receive proposals for one single and one double track railroad bridge near Bureau Junction, Ill., until Aug. 28, at the U. S. Engineer Office, 1637 Indiana Ave., Chicago.

COHOES, N. Y.—The State Railroad Commissioners are considering a proposition to build a viaduct over the tracks of the Delaware & Hudson RR. at Ontario St., Cohoes.

COLFAX, WASH.—The Commissioners of Whitman County received the following bids Aug. 9, for the bridge across Palouse River. (July 28, p. 544.)

Northwest Bridge Co., Tacoma, Wash., combination span, cylinder piers	\$2,395
with frame bent piers	1,945
approaches, per lineal foot	3.10
Puget Sound Dredging Co., Seattle, Wash., combination on frame bents	\$1,978
combination cylinder piers	2,337
All steel cylinders piers	3,875
approaches, per lineal foot	2.95
A. Valk, Pullman, Wash., Combination on framed bents	\$1,970
combination tubular piers	2,820
approaches, per lineal foot	3.00
O. H. Horton, Colfax, Wash., Combination on framed bents	\$1,850
For Oregon fir truss timbers and bents, add	100
" 2 1/2 ft. diameter cylinder piers, 12 ft. "	385
" each additional foot in height	32
" 15 in. steel I floor beams, add	200

The bid of O. H. Horton for combination with framed bents was accepted. The bridge to be 115 ft. long with 18-ft. driveway.

CORDOVA, MEXICO.—Waddell & Hedrick, engineers of Kansas City, Mo., have been retained by the Vera Cruz & Pacific RR. to design and superintend the building of all steel bridges, wooden trestles, substructure work and arch culverts on their entire lines of railroad. Three of the bridges required on this line have already been designed and contracted for, viz., the Cosalapa, Joan Sanchez and Amapa bridges; the last of these is nearly ready. All three are located a short distance south of Cordova. The contract for the metal work for the Papaloapam, Obispo, Tesechoacan, Colorado and Trinidad River bridges has been let to the A. & P. Roberts Co. These bridges vary from 250 ft. to 1,100 ft. in length, and two of them are over navigable streams.

DANIELSON, CONN.—A bridge over Five Mile River is reported contemplated.

DENVER, COLO.—The Board of Aldermen have decided to build the proposed bridge over Cherry Creek at South Fourteenth St. and Eighth Ave. An appropriation of \$7,500 has been made for the work. H. C. Lowrie, Engineer of the Board of Public Works.

DES MOINES, IA.—Bids are wanted until Aug. 31 by E. W. Woodruff, City Clerk, for a suitable highway bridge across the Des Moines River on Sixth Ave. The bridge will be of steel trusses, have steel cylinder piers and the roadway is not to exceed 30 ft. in width and the sidewalks will be 6 ft. wide each.

James H. Sheldon, of Muscatine, Ia., has the contract for building the bridges and culverts for the entire line of the Davenport, Clinton & Eastern. These bridges will require 30,000 linear feet of piling and 1,000,000 ft. of lumber. The contract calls for 40 box culverts. All to be completed by Nov. 1.

DETROIT, MICH.—It is stated that the promoters of the elevated railroad in Detroit have again revived the project, and will ask the Aldermen to permit them to build a railroad bridge across the river to Walkerville. Louis Warfield and George Hendrie are reported interested. They propose to build a bridge over the deep water channel 116 ft. above water, of one single cantilever span, about 1,250 ft. long.

DUBOIS, PA.—The A. & P. Roberts Co. of Philadelphia has a contract for building two double track I-beam spans over the Sandy Lick Creek at Dubois.

DUBUQUE, IA.—Plans for the Eagle Point high bridge are being prepared. The bridge will be 3,500 ft. long.

FREDERICK, MD.—Reports state that the Commissioners of Frederick and Carroll counties are considering building a new bridge over the Monocacy River at Pool's Ford. It will probably cost \$12,000.

GLEN MILLS, PA.—The Delaware County Commissioners, report states, are considering the advisability of building a new bridge over Chester Creek in Thornbury Township at Glen Mills Station. An iron bridge with a 70 ft. span and 20 ft. roadway, estimated to cost \$4,500, is asked for.

GREENPORT, N. Y.—The Southold Town Board will replace the wooden bridge at Mill Creek with a two span iron structure estimated to cost about \$2,000.

HAMILTON, MONT.—The following bids were received Aug. 7 for the Corvallis bridge: Frank Dana, for the San Francisco Bridge Co., Howe truss, \$2,298; combination, \$2,995; Missouri Valley Bridge & Iron Co., combination, \$2,600; Gillette-Herzog Mfg. Co., Minneapolis, combination, \$2,400; A. K. Grow, Howe truss, \$1,925; O. E. Peppard, Howe truss, \$1,995; William Young, Stevensville, Mont., Howe truss, \$1,465. Mr. Young got the contract with an allowance of \$400

additional for changes in the plans; bridge to be completed by Nov. 1. (Aug. 4, p. 558.)

HOUSTON, TEX.—The City Council has ordered the City Engineer to prepare plans and specifications for a bridge across White Oak bayou at the foot of Montgomery Ave.

INDIANAPOLIS, IND.—Aug. 30 is the date set by the County Commissioners for receiving new proposals for the bridge over Fall Creek at Central Ave. A list of the first bids on this work, which were rejected, was given in this column Aug. 11, p. 572.

LAYTON, N. J.—The Horseheads Bridge Co., according to report, has the contract for an iron and steel bridge across the Delaware River near Layton, Sussex County. The bridge is to be a high truss three-span, with 18 ft. roadway, and cost \$18,000.

LEBANON, PA.—Reports state that the Lebanon & Annville St. Ry. will build a bridge across the Quittaphilla west of Annville.

MARIETTA, O.—Bids are wanted Aug. 28 for the bridge across the Muskingum River at Putnam St. Frank Gates, City Engineer. (June 16, p. 437.)

MEXICO CITY, MEXICO.—Waddell & Hedrick, engineers of Kansas City, Mo., are retained by the Interceanic Ry. of Mexico and the Hidalgo & North-eastern, to design the bridges for those roads. They now have on hand a 175 ft. span for the Interceanic. They expect also to do some bridge work in the near future for two more railroads in Mexico beside these, and the Vera Cruz & Pacific. (See Cordova.)

MOBILE, ALA.—Bids will be opened Aug. 28, by the county, for building a new public road on which seven steel bridges will be required. Address Hon. Price Williams, Probate Judge, or W. H. Halcombe, President, Board of Revenue.

MONTESANO, WASH.—The County Commissioners, we are informed, intend to build a bridge across the Chehalis River near Oakville, of 230 ft. span, to be of steel or a combination bridge, and they will most likely advertise for bids next week. J. A. Sells, County Auditor. (July 28, p. 545.)

MT. VERNON, N. Y.—The Common Council has invited the public to discuss matters in reference to building bridges between Mt. Vernon and Pelham a d New York City. The estimated cost of the bridge between Mt. Vernon and Pelham is \$33,745.

NATCHITOCHES, LA.—The Natchitoches Railway & Construction Co. of Natchitoches, La., wants bids until Sept. 1 at noon, on plans and specifications for a single track railroad and traffic bridge, with all necessary approaches, to be built across Red River not more than three quarters of a mile below the bend in the river, above the village of Grand Ecor. One span of the bridge must be a draw span. Bids must include survey of site, profile of river, necessary borings, and include charge for supervision of the construction of the bridge. Simeon Wamsley, Secretary.

NEW RICHMOND, WIS.—Reports state that the county has voted to spend \$3,500 to rebuild the New Richmond bridge recently destroyed by the tornado. (July 7, p. 497.)

NORRISTOWN, PA.—The County Commissioners will receive bids until Sept. 5 for five steel bridges in various parts of the county, as follows: Over the West Branch of the Neshaminy Creek, in Hatfield; over Skippack Creek, in Lower Salford; over Skip-pack Creek, in Towamensing over Swamp Creek, in Frederick, and over Swamp Creek, in Douglass Township. Chas. M. Reed, County Commissioner. D. H. Hiner, Clerk, Montgomery County.

OAKLAND, CAL.—Bids were opened Aug. 9 at the office of Major Heuer, Corps of Engineers, in San Francisco, for building the bridge across the tidal canal at High St. The bids were: Darby, Laydon & Co., \$33,700; Dundon Bridge Co., \$21,864; California Bridge Co., \$24,747; Healy, Tibbitts & Co., \$23,393; H. Krusi, \$28,393; Pacific Construction Co., \$28,997; Thomas Thompson, \$31,480; Cotton Bros., \$32,900. All bidders are San Francisco contractors except Cotton Bros. of Oakland. (July 21, p. 528.)

OTTAWA, ONT.—The plans for the proposed Maria St. bridge over the Rideau Canal and the Canada Atlantic track are completed. Estimated cost, \$40,000. (Jan. 20, p. 50.)

PENDLETON, ORE.—A bridge across the Umatilla River is in consideration by the County Commissioners. B. S. Burroughs, County Clerk.

PENSACOLA, FLA.—The County Commissioners made contracts with the Converse Bridge Co. of Chattanooga, Tenn., for building the iron and steel bridge, 395 ft. long and 16 ft. wide, across Bayou Chico.

PIEDMONT, W. VA.—A foot bridge across Georges Creek in Westernport broke down while being repaired, and it is now planned to build a steel wagon bridge at that point.

ROCHESTER, N. Y.—Receiver H. F. Atwood of the Rochester & Irondequoit RR., although denied the right to build new bridges, is permitted by the court to expend \$2,500 in repairing present structures. (July 21, p. 529; Aug. 4, p. 558.)

ST. JOSEPH, MO.—Aug. 17 is the date for receiving proposals for the seven new bridges and repairing of two bridges for Buchanan County. Theodore Steinacker, County Surveyor.

ST. PAUL, MINN.—The District Court has decided that the Minnesota Terminal Ry. Co. must pay the cost of repairing the University Ave. bridge at Merrian Park. Estimated cost, \$15,000.

SAN FRANCISCO, CAL.—A new bridge will probably be built over the Southern Pacific tracks on the county road near Mt. Vernon Ave. The City Engineer will prepare plans. The San Mateo Electric RR. has offered to pay half the expense.

SAVANNAH, GA.—The Seaboard Contracting Co. has been incorporated to build bridges, docks, wharves, etc. The capital stock is \$10,000 and may be increased to \$50,000. The incorporators are: Frank A. Von Eberstein, Frank A. D. Hancock and A. L. Alexander.

SHELBYVILLE, IND.—The four bridges for which the County Auditor wants bids Aug. 28 are as follows: One across Little Sugar Creek, in Van Buren township, to be 40 ft. long; one across Lewis Creek on the Michigan Road in Addison township, to be 60

ft. long; one across Duck Creek in Section 32 in Noble township, to be 50 ft. long. Adam A. Gorton, Commissioner of Shelby County. E. T. Carson, County Auditor.

SHELLMOUTH, MAN.—A bridge is to be built over Thunder Creek, near this place. W. S. Wallace, County Clerk.

SPRINGFIELD, O.—The Ohio Southern RR., according to report, will build a new steel bridge across North Fountain Ave.

STOCKTON, CAL.—The City Council recently passed an ordinance providing for the construction of a wooden bridge across Mormon Channel to cost about \$2,500. (Aug. 4, p. 559.)

SYRACUSE, N. Y.—W. G. Triest, the lowest bidder for the steel girder bridge over Onondaga Creek at Rich St., has withdrawn his bid and the contract is awarded to the Brackett Bridge Co. at \$6,660. (Aug. 4, p. 559.)

TERRE HAUTE, IND.—Sixteen bids were opened by the Vigo County Commissioners Aug. 10 for the viaduct over the Wabash River to Mackville. All bids were for a steel structure. The bids were:

Variety Iron Works, Cleveland	\$17,463
Massillon Bridge Co.	16,499
King Bridge Co., Cleveland	17,359
Vincennes (Ind.) Bridge Co.	17,000
Wrought Iron Bridge Co.	17,350
Attica (Ind.) Bridge Co.	17,800
Canton, Ohio, Bridge Co.	18,125
Wabash (Ind.) Bridge Co.	17,593
Brackett Bridge Co., Cincinnati	17,350
Lafayette (Ind.) Bridge Co.	17,350
Toledo (Ohio) Bridge Co.	17,442
New Columbus (Ohio) Bridge Co.	17,723
Newcastle (Ind.) Bridge Co.	18,000
Bellefontaine (Ohio) Bridge Co.	20,040
Mt. Vernon, Ohio, Bridge Co.	17,740
Indiana Bridge Co. Muncie	17,300

These bids include two masonry abutments, which were not called for in the other bids opened some time ago.

TEXARKANA, ARK.—The Kansas City, Pittsburg & Gulf Ry. has let a contract to A. J. Trulock of Leavenworth, Kan., according to reports, to build a new steel bridge over the Red River. The estimated cost of the new structure is \$200,000.

VANCOUVER, WASH.—Bids will be received at office of the Auditor of Clarke County Aug. 26 for construction of following bridges:

- No. 1—Truss bridge across Salmon Creek, near Jacob Ward's place.
- No. 2—Bent bridge across South Branch of Whipple Creek.
- No. 3—Truss bridge across Cedar Creek, known as the Spurrell Bridge.
- No. 4—Truss bridge across Cedar Creek at Etna.

A. J. Cook, County Auditor and Clerk of Board of County Commissioners.

VICKSBURG, MISS.—The Groton Bridge Co., of Groton, N. Y., has the contract for rebuilding the iron bridge across Big Black River at Baldwin's Ferry, at \$7,824. J. D. Laughlin, Clerk Board of Supervisors.

VICTORIA, B. C.—The by-law respecting the reclamation of the James Bay flats has been passed. Plans will now be prepared and a company organized to carry out the work. A bridge, principally of steel, will be built and will be supported by steel cylinders filled with concrete. (Dec. 16, 1898, p. 901; June 9, p. 415.)

WALLACE, IDAHO.—The City Engineer presented plans to the Council for a bridge across the South Fork of Cedar St., which were adopted, and the City Clerk was instructed to advertise for bids for constructing same.

Other Structures.

ALLEGHENY, PA.—The Riter-Conley Manufacturing Co. is replacing the buildings destroyed by fire some time ago. There will be a structural department building 110 x 418 ft., and a storage building 31 x 138 ft., each three stories high and of steel construction. There will also be a power building of brick 40 x 165 ft.

ARLINGTON, N. J.—The Erie RR. has plans prepared for a new passenger station for this town, which will cost \$6,000. There will be two waiting rooms and a baggage room.

DANVILLE, VA.—The Southern Ry. has let the contract for the new passenger station at this place.

DES MOINES, IA.—The Dempster Mfg. Co. are preparing to build a new foundry building at the corner of East Second St. and Court Ave. The structure will be 132 x 44 ft. and will be three or four stories high, of brick with a steel truss roof. The building will be fitted with a blast furnace, the necessary shafting and the latest foundry appliances.

FLORENCE, COL.—The Florence & Cripple Creek RR., and the Golden Circle RR., propose to build a new freight and passenger station at Cripple Creek. The plans have not been prepared.

HARTFORD, CONN.—The Berlin Iron Bridge Co. has the contract for a steel building 30 ft. high, 75 ft. wide, for a storage house for the Hartford Trap Rock Co. E. S. Goodrich, President.

McKEES ROCKS, PA.—The Kidd Bros. & Burgher Steel Wire Co., reports state, will enlarge the plant and add new machinery.

Bids are being asked for building the Pennsylvania Malleable Iron Company's plant. The main building will be of steel and be 220 x 640 ft. Several other buildings of brick and steel will be built. Geo. S. White, President; David O. Holbrook, Secretary and Treasurer.

NEW YORK, N. Y.—The Supervisors of Nassau County, reports state, will probably build a new court house, estimated to cost \$100,000.

Plans have been filed with the Building Department by W. H. Birkmire, architect, for a 12-story steel and brick and stone commercial building, at the southeast corner of Nineteenth St. and Fourth Ave. The new building will cost \$775,000 and will have a frontage of 121 ft. and a depth of 150 ft.

ORANGE, N. J.—The Orange & Passaic Valley RR. Co. will build a car barn 80 ft. wide and 190 ft. long, adjoining the present car barns in Washington and Cleveland Sts.

PHOENIXVILLE, PA.—The Heine Safety Boiler Co. has let contracts for two buildings—one 125 x 100 ft., and the other 100 x 60 ft.

PITTSBURGH, PA.—The Buffalo, Rochester & Pittsburgh RR. have been granted a permit to build a new freight depot on River Ave., below Federal St., estimated to cost \$26,000. The Shiffer Bridge Co. of Pittsburgh, has the contract.

Messrs. A. & T. McKenna, brass founders, of Pittsburgh, will build a new plant at Ross and Water Sts. The estimated cost is \$45,000.

POCATELLO, IDA.—The Oregon Short Line, reports state, has decided to build locomotive and repair shops at Pocatello.

PRATT CITY, ALA.—On Aug. 23 bids will be opened for \$25,000 6% 30-year bonds for a water works.

QUINCY, ILL.—The new terminals at Quincy which the Chicago, Burlington & Quincy began work on about two years ago, have been finished at a cost of \$1,500,000.

ROME, N. Y.—Proposals are wanted for building a ward building at the Rome State Custodial Asylum. Drawings and specifications can be seen at Rome, or at the office of G. L. Helms, State Architect, Albany, N. Y. John F. Fitzgerald, Superintendent, Rome.

SAN FRANCISCO, CAL.—The Harbor Commissioners of San Francisco are advertising for bids for the construction of a slip at Main St. for the car ferry, which is to be established by the Atchison, Topeka & Santa Fe when it begins running trains to the new terminus of its road on the east side of San Francisco Bay.

SAVANNAH, GA.—Reports state the Georgia & Alabama, the Plant System, the Florida Central & Peninsular and the Southern Ry. will build a union depot in Savannah.

TOLEDO, O.—The Michigan Central is building a new freight house at Toledo which will be 522 ft. long.

WASHINGTON, D. C.—Proposals will be received at the Bureau of Yards and Docks, Navy Department, until Sept. 2, for building a workshop and boiler house for Ordinance, at the League Island Navy Yard, Pa. M. T. Endicott, Chief of Bureau.

WETHERSFIELD, CONN.—It is proposed to build an extension to the Connecticut State Prison located at this place. Albert Garvin, Warden.

MEETINGS AND ANNOUNCEMENTS.

Dividends.

North Pennsylvania.—Quarterly, 2 per cent., payable Aug. 25.

St. Louis & San Francisco.—Second preferred, 1 per cent., payable Sept. 2.

West Virginia Central.—Semi-annual, 1½ per cent., payable Aug. 25.

Third Ave. (New York).—Quarterly, \$1.75 per share, payable Aug. 31.

Travelling Engineers' Association.

The seventh annual convention of the Travelling Engineers' Association will be held at the Grand Hotel at Cincinnati, Ohio, commencing Sept. 12. W. O. Thompson, Secretary, 415 Marion St., Elkhart, Ind.

New England Railroad Club.

The annual excursion of the New England Railroad Club will take place on Sept. 6, to Crescent Park (Riverside), Narragansett Bay, R. I. A special train will leave the new South Terminal Station, Boston, at 9.05 a. m., via the N. Y., N. H. & H. RR. Edward L. James, Secretary, Box 663, Springfield, Mass.

PERSONAL.

(For other personal mention see Elections and Appointments.)

—Mr. Thomas J. Brincoe, Supervisor of Bridges and Buildings for the Illinois Central, died at Louisville, Ky., Aug. 3.

—Mr. George W. Rafter, M. Am. Soc. C. E., has been appointed Consulting Engineer to the Canal Advisory Commission of the State of New York. Mr. Rafter's reputation and position as a hydraulic engineer make this appointment eminently suitable.

—Mr. George H. Wheeler of Chicago, formerly President of the Chicago City Railway, died at Plattsburg, N. Y., Friday, August 11. He had been in poor health for some time. Mr. Wheeler was born at La Porte, Ind., in 1841, and his parents moved to Chicago in 1849. His college education was obtained at Racine, Wis. From 1860 until 1889 Mr. Wheeler was in the grain elevator business as a member of the firm of Munger, Wheeler & Co., and in 1891 he was elected President of the Chicago City Railway, retiring two years later because of failing health. Mr. Wheeler was a director of the Continental National Bank, a director of the Columbian Exposition and a prominent Board of Trade man.

ELECTIONS AND APPOINTMENTS.

Atchison, Topeka & Santa Fe.—D. D. Bailey, formerly Trainmaster at Emporia, Kan., has been appointed Division Superintendent at Wellington, Kan. His successor is E. E. Ives.

Baltimore & Ohio.—J. H. Glover has been appointed Superintendent of the Akron Division, with headquarters at Chicago Junction, succeeding J. T. Jackson, resigned; effective Aug. 10. E. A. Peck, Trainmaster of the Chicago Division, has been appointed Trainmaster of the Central Ohio, Lake Erie and Straitsville divisions, succeeding J. F. Irwin, transferred.

Birmingham & Atlantic.—The officers of this company, in addition to those already noted (Aug. 4, p. 560), are as follows: Vice-President, John Scott; Secretary and Treasurer, J. Carlsen; Superintendent, G. A. Mattison.

Canadian Pacific.—S. P. Howard has been appointed Assistant General Freight Agent, with headquarters at Montreal.

Central Vermont.—The jurisdiction of F. W. Baldwin, Superintendent, is extended over the Southern Division, with office at St. Albans, Vt., on account of the resignation of D. Mackenzie. C. E. Soule is appointed Assistant Superintendent of the Southern Division, with office at New London; both effective Aug. 15. J. M. Morrison is appointed Resident Engineer at St. Albans, Vt.; effective Aug. 10.

Chicago & Alton.—Geo. B. Simpson, heretofore General Passenger Agent of the St. Louis, Peoria & Northern, has been appointed Assistant General Freight Agent of the C. & A. at Kansas City, Mo., vice S. H. Fulton, deceased; effective Aug. 15.

Chicago & Northwestern.—A. B. Quinby has been appointed Foreman of the Dakota Central Division succeeding F. M. Dean, resigned.

Chicago & Western Indiana.—E. A. Bancroft, heretofore Vice-President and General Solicitor, has been elected President and General Manager to succeed B. Thomas. Mr. Bancroft is succeeded by M. J. Clark, heretofore Secretary and Auditor. John E. Murphy, Treasurer, has been appointed Auditor.

Chicago Great Western.—L. L. Smith has been appointed Division Master Mechanic of the Northwest Division, with headquarters at St. Paul, Minn., succeeding D. Van Alstine, promoted.

Chicago, Rock Island & Pacific.—George H. Denton, Commercial Agent at Omaha, Neb., has been appointed Superintendent of Terminals at Davenport, Ia.

Cleveland, Akron & Columbus.—The Pennsylvania Co., which has taken possession of this company's line, will abolish the office of General Superintendent on Sept. 1. John H. Sample is the present officer.

Cleveland Belt & Terminal.—At a meeting of the directors, held at Cleveland July 25, the following officers were elected: President and General Superintendent, J. H. Wardwell, succeeding Amos C. Barstow; Treasurer, Henry Humphreys of Cleveland, succeeding Frederick Swift; Secretary, W. B. Whiting, Cleveland, succeeding Mr. Wardwell.

Delaware, Lackawanna & Western.—The Passenger Department has been reorganized as follows: George W. Hayler, Chief Clerk; Howard J. Ball, General Eastern Passenger Agent, New York. His territory will comprise New York City, Brooklyn, Hoboken, Newark and all points north and east thereof. M. L. Smith, Division Passenger Agent, Scranton, Pa. His territory will comprise the main line and branches from Washington, N. J., to Binghamton, N. Y., both inclusive. P. P. Hitchcock, Division Passenger Agent, Buffalo. His territory will comprise Buffalo, Niagara Falls and Suspension Bridge; also the main line and branches from Binghamton to Buffalo. W. C. Brayton, Division Passenger Agent, Syracuse, N. Y. His territory will comprise all branch lines north of Binghamton, N. Y. W. N. Babcock, General Western Agent, Chicago. His territory will comprise Chicago and the territory west thereof. Fred P. Fox, Traveling Passenger Agent. F. H. Flynn has been appointed General Freight Agent, succeeding H. C. Hicks, assigned to other duties. Mr. Flynn was for several years Commissioner of the Colorado Traffic Association. The authority of J. B. Marston, Superintendent of the Buffalo Division, has been extended so that his territory will include a line from Buffalo to Binghamton, and also of the Cayuga Division from Oswego to Ithaca.

Denver & Rio Grande.—Fred. Wild, Jr., has been made General Freight Agent.

Port Worth & Denver City.—W. F. Sterley, Chief Clerk to D. B. Keeler, Vice-President and Traffic Manager, has been appointed Assistant General Freight and Passenger Agent; effective Aug. 12.

Grand Trunk.—E. H. Hughes is appointed Western Passenger Agent, with headquarters at Chicago. Geo. A. Mitchell, Master of Bridges and Buildings at Allendale, Ont., has been appointed to a like position at Toronto, succeeding J. Wilson, assigned to other duties.

Lehigh Valley.—E. B. Ashby is appointed Assistant Engineer, Maintenance of Way, with office at South Bethlehem, Pa.; effective Aug. 15.

Lexington & Eastern.—R. E. McCuen has been appointed Master Mechanic, with headquarters at Lexington, Ky.

Long Island.—The Superintendent of Motive Power and Equipment will hereafter report directly to the General Superintendent.

Louisville, Evansville & St. Louis.—M. A. Zook, heretofore Assistant Engineer, has been appointed Acting Chief Engineer and the office of Assistant Engineer is abolished.

Lowell & Hastings.—B. L. Brayton is appointed Car Accountant, vice I. A. Anderson, resigned.

Mexico, Cuernavaca & Pacific.—W. Barclay has been appointed Master Mechanic, with headquarters at Cuernavaca, Mexico.

Missouri, Kansas & Texas.—A. C. Loucks has been appointed Acting Master Mechanic on the M., K. & T. of Texas, succeeding C. T. McElvaney, resigned; effective Aug. 1.

Pembroke Southern.—At the annual meeting of this company, whose line is now building, held at Pembroke, Ont., Aug. 8, the following directors were elected: Thomas Murray, S. R. Pauley, Isidore Martin, R. W. Gordon, J. A. Thibaudeau, F. E. Fortin, W. Russell, R. W. Kenning and Thomas Pink. At a subsequent meeting the following officers were elected: Thomas Murray, President; R. W. Kenning, Vice-President; J. A. Thibaudeau, Secretary and Treasurer.

Pennsylvania Company.—Horace E. Newcomet has been made Assistant Engineer, Maintenance of Way, on the Cincinnati Division of the Pittsburgh, Cincinnati, Chicago & St. Louis. He has been Acting Assistant Engineer on the same division for some time. A. J. Seifert has been appointed Supervisor of Signals, and Robert Ferriday, Assistant Engineer, on the Chicago Terminal Division; effective Aug. 1.

C. S. Simms, Jr., Engineer Maintenance of Way of the Eastern Division of the Pittsburgh, Fort Wayne & Chicago, has been made Engineer Maintenance of Way of the newly created Chicago Ter-

minal Division of the Pittsburgh, Cincinnati, Chicago & St. Louis. Mr. Simms is succeeded by James A. McCrea, formerly Assistant Engineer on the Eastern Division. A. A. Wirth, now Assistant Engineer of the Louisville Division, will be Assistant Engineer of the Chicago Terminal Division. J. W. Coneys, Trainmaster of the Richmond Division, is made Trainmaster of the Chicago Terminal. Effective Aug. 1.

Philadelphia & Reading.—A. H. Yocum is now General Signal Foreman, with supervision over all signals throughout the lines controlled by the Reading. Mr. Yocum's office is at Philadelphia, and he reports to the General Superintendent. R. C. Campbell, Chief Clerk to the Second Vice-President, C. E. Henderson, has been appointed General Western Freight Agent, with headquarters at Chicago, vice F. W. Fowkes, resigned.

St. Joseph & Grand Island.—Dr. Daniel Morton, formerly Assistant Surgeon, has been appointed Chief Surgeon to fill the vacancy caused by the death of Dr. E. S. Garner.

St. Louis, Kennett & Southern.—J. A. Danks has been appointed Master Mechanic, succeeding F. Glover.

Seaboard Air Line.—James U. Jackson of Augusta, Ga., President of the Augusta Southern, has been appointed General Agent of the S. A. L., with headquarters at Portsmouth, Va. This is a new office.

State Line & Sullivan (Lehigh Valley).—O. A. Baldwin, Secretary and Treasurer, has been appointed General Manager to succeed Isaac O. Blight, deceased.

Wabash.—A. Robertson, Trainmaster of the Ninth and Thirteenth Districts, is appointed Acting Superintendent of the Middle Division, in addition to his other duties; effective Aug. 5.

York Southern.—George R. Rogers, Auditor, will assume the duties of S. N. Manifold, who recently resigned as General Manager.

RAILROAD CONSTRUCTION, New Incorporations, Surveys Etc.

ARKANSAS NORTHERN.—Citizens of Little Rock, Ark., have decided to raise a bonus of \$100,000 to aid in building this line from Little Rock northwest 211 miles to the Missouri line, and thence to Springfield, Mo. W. B. Worthen of Little Rock is one of the incorporators. (Aug. 11, p. 574.)

ATCHISON, TOPEKA & SANTA FE.—Surveys are reported in progress for locating the proposed line from Guthrie, Okla., northeast via Perkins, Stillwater and Pawnee to Coffeyville, Kan. It is stated that grading is to be begun soon. This is probably under the Eastern Oklahoma incorporation. (Aug. 4, p. 561.)

Between \$150,000 and \$300,000 is to be spent within the next 90 days, according to report, in improving terminal facilities at Kansas City, Mo.

This company, according to report, has bought several hundred acres of coal land in Marion County, Ia., 25 miles southeast of Des Moines, and proposes to build an extension from Ottumwa northwest to the coal fields and into Des Moines.

Track laying is completed on the Kansas, Oklahoma Central & Southwestern for the entire distance from Coney, Kan., south 45 miles to Bartlesville, I. T. The line is being extended on to a point in Texas, and it is stated that several miles of track is laid beyond Bartlesville. (Aug. 4, p. 560.)

ATLANTIC & LAKE SUPERIOR.—A party is being organized in Montreal by M. E. Berryman, C. E., to locate a portion of this company's line between Port Daniel, Que., and Gaspe Basin. Mr. Berryman has just completed an exploration survey of the road. The line will be built by the inland route, reaching the Basin of Gaspe by the valley of York River, which stream it follows for about 20 miles. The entire extension is some 90 miles long. (Dec. 2, 1898, p. 867.)

BALTIMORE & LEHIGH.—This company has completed the broad gaging of much of its line between Baltimore, Md., and Cardiff, 42.9 miles.

BALTIMORE & OHIO.—Land has been bought at Youngstown, O., according to report, for extending the terminals of the Pittsburgh & Western in that city.

BRADFORD CENTRAL.—Contracts are reported let to a Mr. Chapman of Watkins, Pa., for this line from Canton, on the Northern Central line, to run east about 20 miles to Greenwood on the Barclay line.

BUFFALO, ROCHESTER & PITTSBURGH.—After numerous delays, the last spike has been driven in the Allegheny & Western extension from Lindsey, Pa., west 60 miles to Butler, and the road is now open for traffic. (June 30, p. 482.)

CANADIAN NORTHERN.—Contracts are about to be let by Wm. Mackenzie of Toronto for the first 100 miles of this line from Port Arthur west. (July 28, p. 548.)

CATSKILL & TANNERSVILLE.—The extension from Otis Summit, N. Y., west seven miles, via Sunset and Twilight to Santa Cruz, was opened for traffic Aug. 5.

CHICAGO & NORTHWESTERN.—The completion of the Boyer Valley extension from Mondamin, Ia., northwest 61.3 miles, via Ute to Boyer, has been delayed on account of floods, and it is probable that it will not be done under two months. (March 31, p. 235.)

S. M. Endicott of Traer, Ia., attorney for this line, who has been obtaining right of way for the extension from Belle Plaine, Ia., northwest to Blue Earth, is reported as stating that this branch will be extended next year to Bismarck, N. D. The line to Blue Earth will be completed this year. (Aug. 11, p. 575.)

Press reports from South Dakota state that an extension is to be made this season from Hermosa, S. D., west about 15 miles to Keystone.

CHICAGO & SOUTHEASTERN.—All the grading is finished and track laying will be completed within 10 days on the extension of this line from Anderson, Ind., east 18 miles to Muncie. (Aug. 4, p. 560.) Much of the grading was done last year. (Official.)

CHICAGO GREAT WESTERN.—Right of way is reported secured for an extension south through the city of Faribault, Minn., along Straight River.

CHICAGO, MILWAUKEE & ST. PAUL.—The extension from Rockwell City, Ia., northwest, via Sac City to Storm Lake, was to have been completed Aug. 15, but delays on account of wet weather will delay the completion for about two months. (May 19, p. 359.)

CHOCTAW, OKLAHOMA & GULF.—General Manager Wood is reported as saying that the line is to be eventually extended 200 miles west to Amarillo, Tex., on the Atchison, Topeka & Santa Fe.

DAKOTA PACIFIC.—A plot of this proposed line has been filed in the land office at Rapid City, S. D., and engineers are cross-sectioning the road. Grading is to be begun within a few days. The line, partially completed, is to extend from Rapid City west 33½ miles to Mystic on the Chicago, Burlington & Quincy.

DALLAS, FORT WORTH & GULF.—Surveys are reported in progress for the line from Dallas, Tex., west 31 miles to Fort Worth. (July 14, p. 515.)

DELAWARE & HUDSON.—Drake & Stratton of New York City, according to report, have the contract for the new connecting line from Waymart, Pa., east over the mountains to the Erie's line. About 150 men are at work on the west side of Moosick Mt. (Aug. 4, p. 561.)

DULUTH & NEW ORLEANS.—This company has been incorporated in Iowa to build its proposed line from Duluth, Minn., south to New Orleans, La. S. V. Wardall of Ames, Ia., is President. (July 7, p. 499.)

DULUTH, SOUTH SHORE & ATLANTIC.—Surveys are reported completed and grading is to be begun immediately on the extension from Newtonville, Mich., to Greenland, 60 miles. (March 3, p. 161.)

ERIE.—An officer writes that the company does not intend to build cut-offs between Kent and Galion, O., and near Geneva, N. Y. (Aug. 4, p. 561.)

FOREST CITY & GETTYSBURG.—This company, whose incorporation in South Dakota on July 17 has been noted, is to build from Forest City east about 18 miles to Gettysburg, S. D. The incorporators are: Osborn W. Bright, Zelah Van Lodn and Lewis B. Woodruff, New York; Samuel H. Elrod and Samuel R. Pursel, Clark, Clark Co., S. D.

GREAT NORTHERN (CANADA).—Grading is practically completed on the entire extension from Montreal, Que., northeast 53 miles to Shawenagan. Track laying is begun east of Joliette. Work is also begun on the bridge across the river at Hawkesbury. The line as projected is to extend from Hawkesbury, Ont., northeast to Quebec. Ross, Barry & McRae are building the road.

GREAT NORTHWEST CENTRAL.—A. Fisher and D. J. McArthur of Winnipeg, Manitoba, have the contract for the extension from Hamiota west 25 miles toward Beula. Grading is to be begun at once. (June 27, p. 461.)

GULF, BEAUMONT & KANSAS CITY.—The Texas Railroad Commission has ordered the issue of bonds for the extension from Newtonville north 78 miles to Center in Shelby County, at the rate, it is said, of \$19,597 a mile. The specifications provide for 80-lb. rails and adequate modern equipment. (July 7, p. 490.)

HOLLY RIVER & ADDISON.—The line has been located into Addison, W. Va., 10 miles from Jumbo. Two routes were under consideration, but it is proposed to build from the mouth of Grassy Creek. (June 30, p. 483.)

ILLINOIS CENTRAL.—The proposed extension from Leland, Miss., southeast about 30 miles across the Bogue Phalia River to Murphy, is located. Pond & Cooper of Moorhead, Miss., have the contract. (July 14, p. 515.) There will be no iron or steel bridges but one high trestle over Bogue Phalia River. (Official.)

It has not yet been determined whether the newly acquired Rosedale & Mississippi Valley (July 14, p. 515) will be extended east to the main line in Mississippi, as reported. (Official.)

The company has granted an extension to Aug. 15 for completing the grading on the Fort Dodge & Omaha extension from Fort Dodge, Ia., southwest 128 miles to Omaha, Neb. It is not believed that rails will be down much before Dec. 1. (June 2, p. 393.)

About 250 men are at work raising the grade near Evansville, Ind. The work requires about two miles of track raising on the Indiana side, and 1¼ miles in Kentucky. The highest changes are from 6 to 7 ft. This work is being done because of floods in the valley.

Surveys are reported in progress for an extension from Parsons, Miss., east about 15 miles to Granada. (April 7, p. 499.)

Surveys are reported in progress for a line from Cherokee, Ia., southwest to Sioux City, to take the place of the line now jointly used by the Chicago, St. Paul, Minneapolis & Omaha between Lamar, Ia., and Sioux City.

Surveys are also to be begun soon, according to report, for an extension of the Cherokee-Onawa branch, to run from Grant Center, Ia., south about 65 miles, via Turin, Little Sioux and Missouri Valley to Council Bluffs.

RONTON.—This company is relaying its line with heavier rails. It operates about nine miles of road.

KNOXVILLE & BRISTOL.—The County of Knox, Tenn., on Aug. 10, voted a subsidy of \$100,000 to aid this company in its extension from Blaine, Tenn., northeast 18 miles to Knoxville. (May 26, p. 379.)

LAKE SHORE & MICHIGAN SOUTHERN.—Plans are completed, according to report, for enlarging the yards at Ashtabula Harbor, O.

LINCOLN.—This company was incorporated in North Carolina Aug. 8, with a capital stock of \$60,000, successor to the Linville River, which, after doing no grading, was sold last year. The line as projected from Cranberry, N. C., southeast 14 miles to Pineola. The incorporators are: Isaac T. Mann, Bramwell, W. Va.; Edwin Mann, Bluefield, W. Va.; W. L. Ritter, Welch, W. Va.; James L. Hannall, Welch, W. Va.; W. B. Council, Jr., Boone, N. C.; J. B. Perry, Bramwell, W. Va. (L. R., July 14, p. 515.)

LOUISVILLE & NASHVILLE.—The Southern Ala-

bama line from Pineapple, Ala., south 40 miles to Repton is nearly completed. (June 16, p. 439.)

It is reported that the company will build a branch from some point on its main line in Laurel County, Ky., to run east about 20 miles to Manchester.

Building is to be begun soon, according to report, on an extension from St. Elmo, Ala., south about eight miles to Alabama Port on the deep water of the Gulf.

The company will build two miles of track to reach the limestone crushers at Rock Springs near Anniston, Ala.

MARSHFIELD RAILWAY & TRANSPORTATION CO.—This company was incorporated in Oregon Aug. 1, with a capital stock of \$20,000, to cut timber, develop coal mines, etc., and to build a railroad to transport their products. The headquarters are at Marshfield, Ore. W. H. Noble, P. Hemenway and R. H. Noble are incorporators.

McKEES ROCKS.—This company was incorporated in Pennsylvania, Aug. 10, with a capital stock of \$50,000, to build a line 4½ miles long from McKees Rocks on the Pittsburgh & Lake Erie, to run north to the Ohio River, connecting with the Pittsburgh Chartiers & Youghiogheny line of the company, and south to re-connect with the P. & L. E. Among the directors are E. A. Schoen, President, of Sewickley, and Bryan Robertson of Pittsburgh, officials of the new North Shore Terminal, now building.

MEXICAN ROADS.—Don Francisco Armendiaz of Monterey, Mexico, is in the city of Mexico making arrangements for building a line connecting Matamoros with Monterey and Laredo. It is the intention to buy the old Mexican National line which runs from Matamoros northwest about 70 miles, and to extend it on to Mer on the Rio Grande River about 40 miles further. From there it is proposed to continue up the river to Laredo, about 90 miles, and to build a branch from Mer southwest about 120 miles to Monterey. The plan also includes extensive harbor improvements at Brownsville, Tex., across the river from Matamoros, and a drawbridge over the Rio Grande.

A concession has been granted to Edward Van Buren Hoes of Guaymas, Sonora, for a line from that harbor on the Pacific Coast, to run northeast about 75 miles up the Metape River to San Marcial, passing through coal deposits owned by the Pacific Coast Coal Co. of Philadelphia, Pa.

MONONGAHELA & WESTERN.—This company was incorporated in Pennsylvania, Aug. 2, with a capital stock of \$20,000, to build a line four miles, connecting the town of Millboro, on the Monongahela River, with Clarksville in Green County. The directors are: Samuel J. Macfarren (President), Pittsburgh; F. C. Milliken, Brownsville; A. L. Milliken, West Brownsville, and W. M. Oberlin, McKeesport.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—The spur track at Dickson, Tenn., to the Standard Oil Company's Cooperage Plant is in the railroad company's own yard and is only about 1,000 ft. long. (Aug. 11, p. 571.)

An officer writes that nothing definite has been determined regarding the extension from Bon Air to Mine No. 7. (Aug. 11, p. 575.)

NATCHITOCHES & GRAND ECOR RAILWAY & BRIDGE.—The Natchitoches Railway & Construction Co., of which D. C. Scarsborough is President, and Simcoe Walmsley, Secretary, both of Natchitoches, La., invites bids from engineers on plans and specifications for a central track railroad and traffic bridge, with all necessary approaches, to be built across Red River just above the village of Grand Ecor. (July 14, p. 515.) Bids will be received up to Sept. 1 at noon. The company is organized to build a railroad and bridge across the river.

NORTHERN PACIFIC.—Locating surveys are reported in progress for a branch from Wheatland, N. D., to run northwest to the western section of Cass County.

A spur is proposed from Wallace, Ida., to mines on Sunset Peak.

A. Guthrie & Co. of St. Paul, Minn., have been given the contract for building 20 miles of the Portage la Prairie branch in Manitoba northwest toward the Saskatchewan Valley. Grading is to be begun at once. (June 2, p. 393.)

An extension is to be made, according to report, from Kendrick, Ida., northeast about 25 miles up the Potlatch River.

Track laying is practically completed on the extension from Sykeston, N. D., west 15 miles to Bowdon. Foley Bros. of St. Paul have the contract.

Track laying is to be begun soon on the extension of the Cooperstown branch from Cooperstown, N. D., northwest 28 miles to McHenry. A. Guthrie & Co. of St. Paul have the contract. (June 30, p. 483.)

OMAHA, KANSAS CITY & EASTERN.—A sum of \$500,000 has been set aside, according to report, for improving the roadbed.

OREGON ROADS.—The people of Portland, Ore., are interested in a railroad to run from that city southeast about 60 miles to Mt. Hood. E. G. Jones of the Morning Oregonian, is pushing the project, although not financially interested.

PACIFIC COAST.—Location is completed for the extension of the Port Townsend Southern, about two miles, into Port Townsend, Wash.

PENSACOLA & NORTHWESTERN.—S. N. Van Praag of Pensacola, Fla., President of this company, states that locating along the proposed line will be begun in a few days. It is to run from Pensacola north 432 miles to Memphis, Tenn. (Aug. 4, p. 561.)

PENNSYLVANIA.—New yards, according to report, are to be established at West Homestead, Pa.

PENNSYLVANIA COMPANY.—Surveys have been made, according to report, for an extension of the Sligo branch from Sligo, Pa., north about 10 miles to Clarion.

PENNSYLVANIA ROADS.—Surveys are reported completed for the line of Trexler & Turrell Lumber Co. from Ricketts, Pa., to run northeast about 16 miles to Kasson Park. (July 28, p. 547.)

PITTSBURGH, SHAWMUT & NORTHERN.—Surveys are reported in progress for the Central New York & Western extension from Bolivar, N. Y., north about 15 miles to Friendship. This is one of the short links necessitated by the recent consolida-

tion of several roads into the single line named in the title. (Aug. 11, p. 576.)

RIO GRANDE WESTERN.—The first survey for an extension from Pleasant Valley Junction to Fort Duquesne, Utah, has resulted in failure because of inability to find good grades. Another survey will be made from a point east of Green River. This is probably under the Duquesne RR. Incorporation. (Jan. 20, p. 52.) Joseph R. Murdock of Charleston, Utah, has the contract for the extension from a point three miles southwest of Charleston northeast into Heber, about nine miles. The grade is to be completed into Charleston by Aug. 20, and into Heber by Sept. 1. The section from Provo City, northeast through Provo Canyon, about 18 miles, has been completed. (June 30, p. 483.)

ST. LOUIS, GRAND TOWER & SOUTHERN.—This company is about to let contracts for grading, bridging and track work for its line from East St. Louis, Ill., south 147 miles along the Mississippi River to Cairo. C. J. Griffith is President; John Scullen, Vice-President; J. M. Lee, Chief Engineer. The central office is at the Security Building, St. Louis, Mo. (Dec. 30, 1898, p. 938.)

ST. LOUIS, TECUMSEH & LEXINGTON.—Locating surveys are reported completed for this line from Stroud, O. T., on the St. Louis Southwestern, to run west about 60 miles via Burnett to Lexington. It is stated that the company is ready to let contracts for grading. (Jan. 27, p. 73.)

SANTA FE, PRESCOTT & PHOENIX.—An officer writes that there is no truth in the report that a spur is to be built to the Amalgamated Smelting & Refining Works at Prescott, Ariz. (Aug. 4, p. 561.)

SEABOARD AIR LINE.—President Williams of the S. A. L. is quoted as saying with reference to the Georgia & Alabama terminals at Savannah, Ga., that they embrace more than one mile of water front and are to be completed by about January 1, 1900. (G. & A., Aug. 4, p. 561.) There are two gigantic steam dredges at work estimated to do the work of 5,000 men.

Rapid progress is also being made on the line building from Hutchinson's Island, opposite Savannah, west 20 miles to Meldrim. This is to be completed in October and will be connected with Savannah by a steel drawbridge across the Savannah River.

At Columbus work is being pushed forward on the new terminals. These embrace 30 acres in the heart of the city where the company's freight and passenger depot will be located.

The work of filling in the link between Columbia and Cheraw to connect the S. A. L. and the Florida Central & Peninsular is being pushed forward. The line is to be laid with 80-lb. rails. (July 21, p. 531.)

Surveys are reported in progress for an extension from Athens, Ga., southeast about 100 miles to Augusta. It is stated that the extension is to be under the title of the Chattanooga, Augusta & Charleston Air Line.

Surveys are reported completed for an extension from Charleston, S. C., west about 125 miles to Augusta, Ga.

SOUTHERN.—Citizens of West Point, Miss., are asking this company to build a track from their main line to the site of the new cotton mill.

Surveys have been made for an extension in Florence, Ala., to the site of a new proposed station.

An officer writes that the report is not true that work is begun on an extension from Stevens, Ala., northeast about 40 miles, to Chattanooga, Tenn. The plans as yet are not approved and there is nothing new in the situation. (July 14, p. 515.)

The Birmingham Southern made surveys for an extension of two miles from Slope 5 to Slopes 8 and 9, at Pratt City, Ala.

TULLAHOMA & LYNCHBURG.—Surveys are reported in progress for this line from Lynchburg, Tenn., east about 10 miles to Tullahoma, on the Nashville, Chattanooga & St. Louis. James J. Bean of Lynchburg is interested.

WABASH.—The city of Quincy, Ill., is obtaining right of way for the proposed Hannibal & Quincy extension from Hannibal, Ill., north 15 miles to Quincy. (March 24, p. 217.)

WASHINGTON & GREEN.—This company was incorporated in Pennsylvania, Aug. 2, with a capital stock of \$20,000, to build a railroad from a point on the Monongahela River, to run west about four miles to Clarksville. The directors are: Homer Shoemaker, President; E. B. Hartman, Jr., and C. M. McKelvey, all of Harrisburg.

WISCONSIN CENTRAL.—Grades are being reduced east of Chippewa Falls, Wis., and about 30 miles of track is being relaid.

GENERAL RAILROAD NEWS.

BOSTON & ALBANY.—The stockholders who object to the proposed lease of this road to the New York Central on the ground that a higher rental should have been secured, have published an opinion, prepared by Hon. Richard Olney, setting forth the defects in the lease as published by the directors.

Mr. Olney holds that the lease must be ratified by two-thirds of the stockholders of both corporations and that legislation will be required to perfect it in the State of New York. The first argument is that the stability of the New York Central for a thousand years is too readily taken for granted. The wealthy and conservative men who now control it may sell out; or hostile litigation, business depression, foreign wars and other things may impair its earning capacity. In view of this the Boston & Albany should at least be under no disadvantage, but the lease provides that the Central shall pay its obligations to the Lake Shore & Michigan Southern and the Michigan Central before it pays the dividend on the Boston & Albany stock.

Improvements of the property are to be made by Boston & Albany bonds, to be issued, and are discretionary with the New York Central. This is decidedly objectionable. The lease should say what things are to be called improvements, and the B. & A. should have the choice to issue stock instead of bonds, the stock to be sold at auction and the rental to be increased to pay the additional divi-

dend. At present, Massachusetts does not approve of bonds being issued in excess of the total capital stock; such excess weakens a corporation's standing and credit. If the State of Massachusetts should compel the B. & A. to make important betterments—say, abolish a lot of grade crossings without aid from the State—a large increase of capital or debt might be necessary, but the lease does not provide for this or for interest except on the indebtedness as it now stands. If new bonds are to be issued, who shall bear the expense?

The Directors answer critics by saying that no bonds can be issued except as approved by the State Railroad Commissioners; but this is not sufficient security. The Commission may not last forever, or it may be shorn of some of its powers. Stockholders have a right to expect the Directors to make a contract affording adequate safeguards instead of leaving their property to the protection of any tribunal, however expert or disinterested.

The obligation of the lessee to keep the property in good order and condition is vague. The present condition of the road is very high; is this high standard to be maintained? There is no provision for an inventory and appraisal of the property. The lessee agrees not to under-let the premises, but the leased branches of the B. & A. may be abandoned at the termination of the leases if the Central should feel like letting them go. The Central is interested in the B. & A. only as a small part of a great through line; the B. & A. as an independent company, and the interests of the local public, are sure to be subordinated to the interests of the Central.

Samuel Hoar, counsel of the Boston & Albany, has published a letter replying to Mr. Olney's criticisms. Mr. Hoar opens by remarking that Mr. Olney has found no fault with the amount of the rental and has offered no suggestion in the direction of increasing it or as to how to insure the prosperity of the B. & A. If it should not be leased to the New York Central. He then proceeds to show that Mr. Olney has confused the statements made by the Directors in their circular with the clauses of the lease, whereas, in fact, the circular was prepared several weeks after the lease was agreed to. Mr. Hoar regards the N. Y. C. as one of the best of guarantors. As lessee, it will relieve the B. & A. of all risks and losses liable to occur from accidents, disasters, commercial depression, etc. If the Central fails, the lease ceases; if it does not fail, the B. & A. dividends will be paid regularly.

Mr. Olney said there was no explanation of the clause placing the B. & A. subordinate to the Lake Shore; yet Mr. Hoar had personally explained this to two of Mr. Olney's committee a week before the letter was published. It is not unusual to find a lessee who is obliged to make exception of prior creditors; and it is surprising to find Mr. Olney willing, without inquiry, to charge the directors (some of them his friends) with placing the stockholders in an unfavorable position, without explaining their action. Mr. Hoar claims that the Central is bound to return all the "property" described in the lease, which includes the sub-leases. Of these sub-leases, the North Brookfield covers only four miles of road, and the Ware River runs nearly a thousand years, so that the whole bugbear is about the Pittsfield & North Adams lease, which expires in 1975, but the P. & N. A. is a valuable property and it is impossible to imagine that the Central will ever want to let it go. The phrase about the sub-leases is just like one in the lease of the Boston & Providence to the Old Colony, which has never been criticised. If Mr. Olney were to be employed by dissenting stockholders of the N. Y. C. he might show that there is no provision in the lease to prevent the B. & A. from renewing sub-leases without the consent of the N. Y. C.; and there is a provision subjecting the N. Y. C. to all leases that from time to time may be made.

Turning now to those features of Mr. Olney's letter which "are more judicial and fair," Mr. Hoar says that the lease of the Boston & Lowell to the Boston & Maine gives the lessee unlimited power to make improvements and the State railroad commissioners are to decide disputes between lessor and lessee. In the lease of the Old Colony to the New York, New Haven & Hartford, the lessor will issue bonds or stock, or both, as may be necessary and proper. In the lease of the Boston, Concord & Montreal to the Boston & Maine, the lessee is given power to make improvements to be paid for by the lessor and in case of dispute the State railroad commissioners of New Hampshire are to decide.

The New York Central will be responsible for performing the great public service of the B. & A. and it should properly have power to decide how to manage and build up the property. The great protection and security of the B. & A. shareholders is the law of Massachusetts, under which bonds can be issued only after a public hearing and decision by the Railroad Commissioners. It is hardly conceivable that the State will ever make bond issues more free than now. Even if the railroad commission should be abandoned, the law of Massachusetts still stands. The B. & A. is to issue bonds "as the lessee may request," but only "so far as it lawfully may."

On two points Mr. Hoar agrees with Mr. Olney: (1) that it would be well to make sure that in case the State compelled the B. & A. to make permanent improvements the lessee should assume the interest on the necessary bonds; and (2) there would be no harm in providing in the lease that the expense of getting out new bonds shall be borne by the N. Y. C.

Mr. Hoar is opposed to a clause providing for the increase of the capital stock of the B. & A.; betterments should be paid for by bonds because that it is a cheaper and more economical method.

The obligation to keep the property in good order was criticised as too general, but Mr. Olney's proposition "as good order as when received" is no better. A railroad returned to-day in as good order as it was 50 years ago would be unfit for use. If a change in this clause is to be made, the provision should be for the return of the property according to the standard of first class roads at the time of expiration.

Mr. Hoar believes that the dissenting stockholders own a good deal of stock in the two principal rivals of the B. & A. and he thinks that this divided interest may have affected their view. But he would treat all critical stockholders with fairness and he thinks that a conference should be had with them and any reasonable propositions for changes should be submitted to the N. Y. C.

The Boston Chamber of Commerce has appointed

a committee of seven members to consider the proposed lease of the B. & A. to the N. Y. C.

BOSTON & MAINE.—The report for the year ended June 30, 1899, shows the gross transportation income to be \$19,890,608, an increase of \$147,662 over 1898. The operating expenses for 1899 were \$13,705,977, an increase of \$25,187. The net income for 1899 is \$6,184,630, an increase of \$122,475. After the payment of interest, rentals, dividends, etc., the balance is \$15,991 in excess of last year.

BUFFALO & SUSQUEHANNA.—First mortgage bonds of 1893, including 75 \$1,000 bonds of series A, and five \$500 bonds of series B, have been called for the sinking fund, to be redeemed at par and accrued interest on Oct. 2, at the office of Harvey Fisk & Co., New York, interest to cease Oct. 1. (July 14, p. 516.)

CLEVELAND, CANTON & SOUTHERN.—Holders of Mercantile Trust Company's certificates of deposit of the Cleveland & Canton first mortgage 5% bonds will receive \$932.27 per bond, under the terms of sale to the Wheeling & Lake Erie, upon presentation of their certificates to the Mercantile Trust Co., New York. (April 14, p. 273.)

ILLINOIS CENTRAL.—This company, on Aug. 7, drew 50 bonds of 1874 for the sinking fund, to be paid at par at the office of Morton, Chaplin & Co., London, on Oct. 1. (April 28, p. 307.)

LEAVENWORTH, TOPEKA & SOUTHWESTERN.—The sale of this road has been again postponed until Oct. 12. (July 21, p. 532.)

MEXICAN MINERAL.—This company whose incorporation in New York was noted in the construction column last week (p. 575), has taken over the Monterey Mineral Ry. & Terminal, whose line runs between the points named in the incorporation, namely, from Monterey, Mexico, to the San Pedro Mining District. Robert S. Towne of New York, President of the Mexican Metallurgical Co., represented the company in the purchase.

NORTHWEST.—T. B. A. Price has been appointed receiver of this property in the suit of Chas. M. Reed of Erie, Pa. (Aug. 11, p. 576.)

PORT ARTHUR, DULUTH & WESTERN.—Mr. Neil McLean, official referee, opened tenders at Osgoode Hall, Toronto, Aug. 9, for the purchase of this road. The tender accepted was that of Aemilus Jarvis for about \$500,000. The road extends from Port Arthur, Ont., to the International boundary at Gunn Flint Narrows near Minnesota, 85½ miles. McKenzie & Mann have running powers over the road and it is thought that they are the purchasers.

RALEIGH & GASTON.—The stockholders will meet at Raleigh, N. C., Sept. 6, 1899, "to consider the terms and conditions upon which the Raleigh & Gaston RR. may consolidate with the Seaboard & Roanoke RR., the Raleigh & Augusta Air Line RR., the Carolina Central RR., the Georgia, Carolina & Northern Ry., the Durham & Northern Ry., the Roanoke & Tar River RR., and the Louisville RR., or any one or more of them, and to provide for increase of the capital stock of said Raleigh & Gaston." Also "to take any other action that may be necessary or expedient in the exercise of the powers given to this company under the act of the General Assembly of North Carolina, entitled An Act to amend the charter of the Raleigh & Gaston RR. Co., and to authorize said Raleigh & Gaston RR. Co. to consolidate with other railroad, transportation or other companies, or to lease or otherwise acquire the property and franchises of the same."

ST. PAUL & DULUTH.—The company has \$214,519 with which it proposes to retire 7% preferred stock. Proposals will be received up to Aug. 31, at noon, at the company's office, New York. (Jan. 20, p. 55.)

TALBOTTON.—The Supreme Court of Georgia has handed down a decision in the case of Gibson, et al., vs. Thornton, et al., reversing the decision of the lower court which refused to grant a petition for an injunction and receiver against this company. The case will probably be taken up in the September term. The road runs from Talbotton, Ga., to Bostwick, seven miles.

TEXARKANA & FORT SMITH.—Attorney General T. S. Smith of Texas has given notice to proceed against this line of the Kansas City, Pittsburgh & Gulf on the ground that the general offices have been removed from the State, contrary to the law.

TOLEDO, ST. LOUIS & KANSAS CITY.—The unsecured creditors last week filed at Cincinnati a petition asking for a re-hearing of their case. A decision was not expected before October. (July 14, p. 516.)

WABASH.—The stockholders will vote on Oct. 10, at St. Louis, on a proposition to confirm the Des Moines Division mortgage "as a lien upon all and every part of the property therein described, for the equal benefit of the holders of all said bonds to the amount of \$1,800,000." This action is needed prior to the issue of bonds additional to the present \$1,600,000, the maximum amount named in the deed of trust. (March 24, p. 220.)

TRAFFIC.

Traffic Notes.

The Lake Shore & Michigan Southern announces that one-way single-trip tickets will hereafter be limited to one day beyond the date of sale.

The Weighing and Inspection Bureaus of the Central Traffic Association in the year ending June 30, 1899, made corrections which increased freight revenue \$1,770,711.

The roads eastward from St. Louis have reduced the rate on flour for export to 15 cents per 100 lbs., St. Louis to New York. The reduction was at once met by the lines north of St. Louis, which made a rate of 19½ cents from the Missouri River.

On the occasion of the return of the Utah soldiers from the Philippine Islands, the Southern Pacific made a special rate of \$30 for the round trip from Ogden to San Francisco, 834 miles, for the benefit of relatives of the soldiers who wished to go to the Coast to meet them.

The Maine Steamship Line, the Grand Trunk Railway and the Chicago, Burlington & Quincy have made a freight tariff from New York to Kansas City on the basis of 80 cents per 100 lbs., first class. This

route, via Portland, 2,050 miles long, is established to meet the competition by way of the Gulf of Mexico.

The Commissioner of Internal Revenue has decided that where two or more copies of export bills of lading are made, the ten cent revenue stamp need be affixed to only one of them. The bill retained by the consignor is to be stamped and a notation made on the others to the effect that one has been stamped. Hitherto the Department has required a stamp on each bill not marked "copy" or duplicate.

Chicago Traffic Matters.

Chicago, Aug. 16, 1899.

The low colonist rates that have been in effect in the western territory for several months will be a thing of the past Sept. 1. The general passenger agents of all the Western lines that have been using the rate have agreed to terminate it on that date. This will have the effect of advancing the rate from Chicago to San Francisco from \$36.50 to \$51.50.

Officers of the Western roads are no nearer a settlement of the Gulf line rate trouble than they were six weeks ago, when the conferences began. The officers of the Gulf are deaf to all arguments and absolutely refuse to make any change whatever in their rates, claiming, as they have for a year or more, that their road is entitled to a differential and will take it whether the competing lines agree or not. Officers of competing roads gave it out that they would place the subject before the Interstate Commerce Commissioners when they were in Chicago, but no such action was taken. In addition to the worry of the Gulf competition, it has been discovered that a rate of 80 cents (first class) has been made from New York to Kansas City, via Portland, Me., over the Grand Trunk and the Burlington. Officers of the direct rail lines refuse to arbitrate the question with the Gulf receivers. The latter are willing to submit the question to arbitration.

The Wisconsin Central, Chicago Great Western and Minneapolis & St. Louis are still without the fold of the Western Passenger Association. Officers of the Wisconsin Central say they do not like to go into any traffic organization until the company is completely reorganized. The Chicago Great Western is the real stumbling block. This line is out for business, and it looks as though its officers were apprehensive that they might not get enough to keep them going were they to strictly live up to the rules of any traffic organization.

The Chicago, St. Louis & Peoria road has reduced the export flour rate, St. Louis to New York, from 19 to 15 cents per 100 lbs. The rate will be met by the Chicago-Missouri River roads, but not from Chicago.

Grain and provision rates from this city eastward have been advanced to the basis agreed upon by the executive officers at their last meeting in this city. The advance is from 20 to 25 cents on export provisions, export corn from 9½ to 11 cents and export oats from 11½ to 13 cents. The domestic rate on all grain, except corn, now is 17 instead of 13 cents. Domestic tariffs on corn have been advanced from 11 to 15 cents. It is claimed, however, that most of the large shipments of flour and grain shipped eastward since the first of August have been on the low rates in force prior to that date. It is also asserted that these low rates will take a good deal of freight until navigation closes. They were made originally to secure business from the lake-and-rail lines, and it would not be surprising to again see open announcements of the previous low rates at any time.

Local railroad men are pleased with the expressions on pooling brought out at the recent business men's banquet at the Auditorium in this city. The address of Chairman Knapp, of the Interstate Commerce Commission, on pooling, seems to be approved by all classes except the big shippers. Mr. Knapp, of course, sanctions pooling only under governmental supervision.

Persons who have not been watching affairs in the Calumet district hardly realize the important moves that are being made in the deep water harbor region by the railroad and grain interests. As a matter of fact, most of the grain elevators, many of the large manufacturing industries and a number of the biggest railroad yards around the city are now packed in along the Calumet River. The outer belt lines are building all their new branches and extensions with a view of making South Chicago the center of their traffic. New elevators planned and in course of construction will, when finished, make 4,000,000 bushels storage capacity on the Calumet. Shallow water in the Chicago River and congestion of the inner districts are the stronger factors in the rapid development of the Calumet, which has a fine deep harbor.

Officers of the eastbound lines have agreed that children between the ages of 5 and 12 be carried at half rates whenever special reduced rates are granted for an occasion.

The continued heavy movement of freight is causing some blockades. It is said that 2,000 cars of corn for Baltimore are waiting here, while the roads eastward are considerably blocked with corn. Baltimore and Newport News have been getting the lion's share of the corn-export business for months. Certain parties have evidently had a cut-rate to those ports, as they have overbid all competitors in the West and secured the corn. Now they have more than they are able to handle, and the cars are tied up. Roads west of Chicago are refusing to let their cars go east.

Some of the traffic officers are speaking rather contemptuously of the conferences between the Interstate Commerce Commission and railroad officers, the last one of which was held here last week. At this meeting observers remarked the absence of the highest officials of the roads. When the "monthly lovefeast" was inaugurated six months ago it was attended by the Presidents of the railroads, with an occasional Vice-President. After two or three meetings a President was rarely in attendance. At this meeting nobody higher than a Vice-President appeared, and General Freight Agents were in the majority. "These meetings are becoming farcical," said the Vice-President of one of the Western lines. "Pledges to maintain rates are renewed and congratulations of the commission are received becomingly by the railroad officials. They leave the meeting and proceed to do just as they please about 'meeting competition,' which in nine cases in ten means rate cutting or rebate paying. If the commission would take the trouble to procure evidence to convict violators of the law instead of being satisfied with worthless assurances given that the law will be obeyed in future it would be much better for the railroads as a whole and the public."